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*Training and
Readiness*

Training and Readiness

W

ow! What a great time to be a surface warrior!

Today, surface warfare steams full speed ahead into what many believe will be a Maritime Century. It's an exciting time!

But we cannot rest on our laurels — or the victories of years past. The crystal ball showing what lies ahead for our Navy is cloudy — but we do know a few things:

- The Navy's capabilities will be in even greater demand.
- The world is an ever more dangerous place.
- We must continue to sail in harm's way to defend our nation, its citizens, and our interests around the world.

USS *Cole* (DDG 67) brought home to us again that the face of the battlefield has changed and will continue to change. In the years ahead we will not fight a high tech armchair battle. We need to be ever vigilant every day for combat at close quarters. As we recall the heroic efforts of the crew of the *Cole*, we need to rededicate ourselves to being ready to fight for our ship at any moment — for none of us know when we will be put to the test in battle. I salute the men and women of *Cole* who met the challenge and saved their ship. Against the backdrop of more than two centuries of American maritime history, these heroic Sailors continue to carry the mantle of those who have gone before.

Today — I see new ships: DDG 51s, LPD 17s, a new LHD 8, and the futuristic DD 21, together with highly sophisticated mine warfare ships. I see new systems: land-attack guns and missiles, theater ballistic missile defense, SH-60R antisubmarine warfare (ASW) and attack helicopters, cooperative engagement capability, and anti-ship missile defense systems such as NULKA decoys, Rolling Airframe Missile, Evolved Sea Sparrow Missile, SPQ-9B radar, and the multi-function radar. And this is only a partial list.

I also see a new focus on our people — the Sailors who man and fight our ships. I am committed to increased pay, better education and training both inport and underway, and focused, professionally challenging operations at sea.

Our new CNO, Admiral Vernon E. Clark, has given us clear guidelines as we sail into uncharted waters ahead.

- First - Manpower - which I interpret to be motivated, well-trained and enthusiastic Sailors.
- Second - Current Readiness - or a fresh focus on today's Fleet.
- Third - Future Readiness - building, designing and developing tomorrow's Fleet.
- Fourth - Quality of Service - emphasizing the uniqueness of going to sea for our country, and being proud of how we work and live.
- Fifth - Alignment - ensuring our actions follow our rhetoric, especially in the area of leadership.

You have my word we will work hard to translate the CNO's priorities into actions, focusing on our Sailors, our ships and their systems.

I am pleased to relieve RADM Mike Mullen as the Director, Surface Warfare and look forward to serving our fantastic surface warfare community. I am anxious to get out to the waterfront and see and listen to many of you.



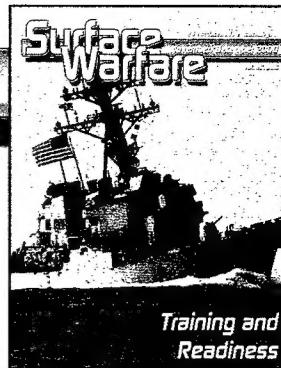
Rodney P. Rempt
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Rear Admiral, U.S. Navy

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■ Surface Warfare Training

The Strategy Weighs Anchor

By CAPT Greg Maxwell, USN (Ret.)

**"The crew is the most critical shipboard 'system'—
design the ship and training around them"**

Two years ago, VADM Mike Mullen, Commander 2nd Fleet, then OP-N86, offered this challenge to the Navy Acquisition Community as a means to achieve "optimal manning" and "optimal training" in future ship, combat system and engineering system design and development. This bold statement, central to the development of a surface warfare training vision and subsequent approved strategy, reflects his understanding and personal conviction that as warfare missions evolve, new demands will be levied on the surface force, and that the success of meeting these demands will remain the challenge of the Navy's most valuable asset: *people*. And, no matter how rapidly technology changes or how complex and dynamic the battlefield, these *people*, who remain the heart of our community and make up surface warfare ship crews, must be trained and ready.

The Surface Warfare Training Strategy (OPNAVINST 1500.57A), approved and distributed in August 1999, was written with the stated purpose of "providing a vision, strategy and actions required for effective and efficient surface warfare training through the year 2010 and beyond." The objective of the strategy is to place a premium on and acknowledge the value of the individual Sailor, and provide a template for developing a complete training package that will support the full spectrum of operations, from the conduct of joint operations, to the ability of carrier battle groups (CVBGs), amphibious ready groups (ARGs) and individual ships to operate and conduct realistic fleet training at sea or ashore, to the individual Sailor's ability to operate and maintain specific pieces of equipment on the deckplates.

The strategy recognizes that more than ever before, it

is absolutely critical to identify and establish manpower and training requirements at the earliest stage of system acquisition and design and that fleet mission area training requirements must be identified and considered much earlier in the overall acquisition process.

Training and, in particular, mission area training will become even more critical to fleet readiness and mission success; therefore,

when a new capability or system is introduced into the fleet, a complete training package must be in place and functioning.

Although focused on the future, the Strategy also recognizes that most of today's ships will also be in commission in 2010 and that any new ship class or new or modified war fighting capability must be interoperable and compatible with the Fleet and supportable by the evolving shore infrastructure.

Optimal manning and optimal training are new and often misunderstood terms, but these concepts are not only central to the surface warfare training strategy, but to the future of surface warfare in general.

Optimal manning is not minimal manning nor is it directly linked to current workload reduction initiatives. Rather, optimal manning is defined as just the right number of personnel assigned duties to perform all the missions for which the ship is designed, no more, no less.

Using a human-centered design discipline, the ship (or system) is designed from the keel up around the crew to perform its intended mission.

Optimal manning is achieved through a very thorough top down functional analysis of all shipboard and system functions early on in the design process. Trades are conducted among technology (hardware/software), resources, Sailors and assigned tasks based on the entire analysis and with an eye toward leveraging technology and reducing menial Sailor workload. Crew size is then determined and essential billets established.

Optimal training is defined as a Sailor arriving aboard having received the precise, tailored, training that allows him or her to step into a new job as soon as possible to minimize turnover time, on

the job training and over-tasking of other crew members. In short, optimal training will provide the ship with a "full up round" — qualified and certified. To achieve optimal training, the "culture" must change to accept fully qualified individuals and our shore training infrastructure must evolve to produce this "full up round." The ability to conduct proficiency and currency training must expand and improve onboard and at fleet concentration areas.

Every new system must have the inherent capability (embedded training) to conduct individual operator and/or maintainer proficiency training to full scale mission area team training and be

sufficiently scalable to incorporate distance supported training in port or underway.

So, you might ask, is any of this achievable? Are we making any headway in implementing the strategy? Or is this just another "bright" idea, approved, but forgotten after an impressive "inside-the-Beltway" PowerPoint briefing?

The fact is much has already been accomplished and much more is in progress. A complete report would be far too lengthy for this article but a brief summary of four significant initiatives have been realized.

Mission Area Training:

As new mission areas are identified and as traditional missions evolve it is imperative that human system integration (HSI) and manpower, personnel and training (MPT) requirements be assessed and established at the very beginning of system acquisition and design. The full impact that new systems will have in the joint battlefield or on the ability of CVBGs and ARGs to operate and conduct realistic fleet training at sea or ashore must be addressed and systems designed with an embedded

training capability that will allow combat teams to maintain a very high level of operator, maintenance and tactical proficiency.

In July 2000, VADM Mullen reported progress being made in

(TACTRAGRULANT/PAC and EWTGPAC/LANT) and acquisition or program office (all PEO's and program managers with LAW system responsibilities) representatives have met formally four times and provided the initial



▲ Operating the BOPC (Battle Force Tactical Training System Operation Processor Console) aboard USS *Stout* (DDG 55). (PH2 Jason B. Keefer/USN)

this initiative, specifically in land attack warfare systems, by message (CNO WASHINGTON DC//N86// 111354Z JUL 00). This message stated the capstone organization under his direction is "developing a top level surface land attack warfare training requirements document (TRD) that will provide a single coherent plan for surface land attack warfare training."

Prominent among several significant issues the TRD will address are land attack warfare (LAW) mission area training requirements for all systems, HSI requirements, assessment of single site LAW training, cross-service training requirements and simulated fire or actual live fire requirements.

Work is in progress and fleet (CINPACFLT, CINCLANTFLT, Second Fleet and Third Fleet), training command

requirements for the TRD. The smooth draft is under review and the approved TRD is expected to be distributed in December 2000, then updated as required to support emerging LAW requirements.

It is important to note that the TRD will not replace traditional and individual Navy training systems plans (NTSP); rather it will complement those NTSPs and act as a forcing function to ensure individual program managers look beyond their respective systems when assessing LAW MPT/HSI requirements.

The TRD will also provide the fleet and the acquisition community a venue to identify, document and approve fleet and joint level training requirements, which in the past have been addressed separately and generally too late to influence system development.

While LAW and, more specifically, the revolutionary requirements of the *Zumwalt* class (DD 21) Land-Attack Destroyer have been the catalyst for this approach, we are expanding our horizons and will soon initiate a similar effort to address, document and establish mission area training requirements for theater air warfare and undersea warfare.

Human-Centered Design-Optimal Manning:

In a May 1999 letter to systems commanders and all program executive officers with surface warfare acquisition responsibilities, VADM Mullen expressed his support for these new concepts and his belief that they are critical to future mission accomplishment. "I intend to evaluate all new surface warfare acquisition programs accordingly," VADM Mullen said. Subsequently, all N86 operational requirements documents (ORD) have been or are currently under review and the HSI sections have been or are being updated to reflect this direction and priority.

Technical engineering documents such as the LAW systems requirements document (SRD), and system engineering master plans (SEMPs) are also being updated to reflect HCD and optimal manning fundamentals. Most significantly, industry teams have incorporated these concepts in their overall plans for DD 21 design and studies are in progress to determine the impact and changes required to the personnel and distribution systems to support them.

Tailored Training- "Full Up Round":

SWOSCOLCOM is leading an effort to clearly identify war fighting tasks, today and for the future and developing a plan to train, qualify and certify officers

prior to reporting to a ship. They are looking at new and evolving mission areas and documenting tasks critical to performance in current and projected watch stations and developing task-related skills and functions for demonstration prior to qualification or certification. They are doing this with an eye toward implementation before the first DD 21 is commissioned.

Using advanced technology applications, the DD 21 program office has developed an integrated command environment (ICE) at Naval Surface Warfare Center (NSWC) Dahlgren, Va., to stimulate thought, demonstrate technology and document watch stander performance in a futuristic command center specifically designed with the Sailor in mind. The data being collected in the ICE will be used to assist in the design of future ships, command centers and training systems and to help define tasks and training tracks for watch stations and activities which we anticipate will be much different from those in the Fleet today.

Distance Support/ Distance Training:

In a March 1999 message (CNO Washington DC//N86// 151339Z MAR 99), VADM Mullen expressed his interest in and support for distance support initiatives including on-demand distance training, but wanted to ensure that actions underway or contemplated were being viewed from an operator's perspective. He asked RADM Phil Balisle, then deputy commander, Naval Sea Systems Command (NAVSEA), and currently commander, USS *Abraham Lincoln* battle group to take the technical lead to help establish distance support requirements and take action to identify a shore infrastructure that could best support operators at sea in the future.

Promoting an "anchor desk" concept, RADM Balisle tasked NAVSEA's Jeff Orner, assistant deputy commander, Fleet Logistic Support, with overall coordination of this initiative. In a little more than one year, tremendous progress has been made toward getting our collective arms around this complex issue.

Navy wide, distance support products, technologies and initiatives have been coordinated and a testing and evaluation schedule developed. Currently, many distance support initiatives, including several in logistic support, remote

including actions underway and completed, generated by the surface warfare training strategy is aggressive. The strategy has elevated thought, embraced innovation and provided visibility and opened many new and exciting doors on how we will train Sailors in the future. Significantly, many of these initiatives, once validated, could be, and wherever possible, will be installed aboard today's ships and used to improve both training and the quality of service for today's Sailors.

The surface warfare training strategy has lofty and ambitious



▲ Seaman Jody Bean from Russell, Mass., shows Midshipman 1st Class Latoya Hill the bearing indicator on the ship's helm. (CHP Greg McCreash/USN)

maintenance, system monitoring and distance training, are being tested and evaluated at sea by the USS *Abraham Lincoln* battle group, with follow-on testing and evaluation scheduled for the USS *Harry S. Truman* battle group. Their post-deployment findings, lessons learned and recommendations will not only go a long way toward validating the utility of distance support, but also toward determining how the infrastructure must evolve to support future fleet operations.

We are in a period of change and the above list of initiatives,

goals. There remains much to do—we intend to aim high and secure the very best for our nation and our Sailors. Properly tasked and well-trained with responsive and comprehensive on-demand distance support, our surface warriors can proudly and confidently operate, fight and win the complex battles of the future. ■

TAO Training on the Move at SWOS

By LCDR
Darryl Corey Melton

Advances in technology and the move toward optimally crewed and human centered design ships have necessitated a change in how we do business at Surface Warfare Officers School (SWOS). Our challenge today, tomorrow, and for the future is to harness the force behind the groundswell of change.

In the department training directorate and in SWOS as a whole, our future involves innovation and moving from advanced familiarization training to qualification training.

In order to meet the needs of the future, SWOS is changing today.

What drives the need for this revolutionary approach to training our surface warfare department head students?

First is the requirement to ensure the optimally manned *Zumwalt*-class destroyer (DD 21) officer is fully qualified upon arrival. There will be no space or time available for unqualified watchstanders. To avoid this situation, we must invest more heavily in training our surface force now. The investment is significant, but one that must be made to deliver properly trained officers for DD 21.

The need for change does not result from DD 21 alone. As our force structure continues to change, the maritime operating environment becomes increasingly complex. Conducting training as we have in the past will not be adequate to prepare our officers for future missions and operating environments. Starting now, we can use the advances in technology to provide them the training they will need. When the "train to qualify" curriculum is fully implemented, graduates of the SWOS department head course will arrive aboard their ships as fully qualified tactical action officers (TAO). As the Fleet and SWOS, as an extension of the waterfront, inject more information technology into the tactical decision-making process, the TAO watchstation will evolve.

Enhanced real-time connectivity to vast information resources that influence tactical decision-making will expand the scope of the TAO's situational awareness. The TAO of the future will be will more realistically be a theater watch officer (TWO).

If you do not know where you are going, any course will take you there! Therefore, our greatest challenge is to determine how we get there (qualification training) from here (advanced familiarization training). For the

department head training directorate, advances in technology will facilitate the necessary curriculum changes. Many lessons currently taught in the classroom will be transformed into self-paced, individual computer-based training. This transformation will make time available for specialized trainers and integrated training between prospective commanding officer (PCO), prospective executive officer (PXO), department head (DH) and division officer course (DOC) students.

Currently, slightly more than 14 percent of the current TAO core curriculum is devoted to trainers. In order to qualify the TWOs of the future, the trainer and integrated training hours will need to be increased substantially. By utilizing generic, reconfigurable PC-based trainers, SWOS will possess the capability to emulate/replicate any system aboard our surface ships.

Additionally, dedicated at-sea training is being examined for department head students as a key component for achieving TWO qualification. During the curriculum, a systematic rotation plan for SWOS "school ships" will afford DH students the opportunity to train aboard their future class of ship without having any shipboard duties and responsibilities. Therefore, graduates will arrive at their next ship familiar

with the ship's layout and with underway training time. This training opportunity has the potential to be integrated with division officer and prospective commanding officer and executive officer training as well.

Clearly, combining the training for PCO, PXO, DH and DOC students provides significant training and mentoring opportunities. At SWOS, there is a wealth of student-based knowledge and experience that needs to be tapped. Training at SWOS will truly be transformed into a wardroom learning environment. Not only will SWOS have made efficient use of the vast experience available among more senior students, but the integration will facilitate Fleet-wide cultural acceptance of the "train to qualify" initiative through exposure at SWOS.

The technology exists today to set the surface warfare community on the right course for the future. SWOS is beginning with collaboration at sea (CaS), which merges web documents, e-mail and chatrooms into a simple but highly effective intra-battle group collaborative planning tool. CaS, which has demonstrated significant success in recent battle-group deployments, will be a key element of SWOS' "Operational Fusion Center." SWOS recently installed CaS. It will provide officers from division officer (DIVO) to major command visibility on and familiarity with a powerful IT-21 application in use aboard their prospective ship and throughout the Fleet. CaS at SWOS will not only enable each student to report to his or her ship with the IT-21 application skills needed to operate in an increasingly complex operational environment, it will allow them to be

connected seamlessly to their future ship prior to arrival.

The value of this capability to individual ships and the Navy's manpower management effort is clear. SWOS students will arrive at their ships possessing the knowledge to turnover with their incumbents upon arrival, since they will have been connected during their entire training term at SWOS.

With reconfigurable, PC-based trainers, CaS, and other trainers, such as the multi-mission tactical trainer (MMTT), SWOS stands ready to commence the journey to "qualification training." The MMTT gives department head training instructors the ability to conduct tactical and command and control training in a variety of scenarios ranging from

standing TAO in the CIC trainer will be able to interact with DOC students standing OOD in the bridge and ship-handling simulator.

How long will it take

to get there? To meet the goal to support DD 21 manning later this decade, the transition must begin immediately. The final component of transitioning to qualification training is the SWOS instructor staff. Clearly, we must continue to recruit the most qualified officers and enlisted personnel to serve as instructors at SWOS. The "train to qualify" initiative will require the correct mix of instructor experience across each class of ship of the force. Tools such as CaS will augment the instructor base of expertise.

If you do not know where you are going... any course will take you there!

individual ship Combat Information Center (CIC) to battlegroup and surface action group/surface action unit (SAG/SAU) operations. The MMTT is capable of integrating up to four CICs and associated support aircraft. The MMTT trainer supports specialized training in each of the various warfare areas. Trainer integration is the key to trainer realism and achieving the proper qualification standard. Integrating bridge and ship-handling simulators with CIC trainers will not only make trainers more realistic, but also will emphasize the coordination between the TAO and the officer of the deck (OOD). DH students

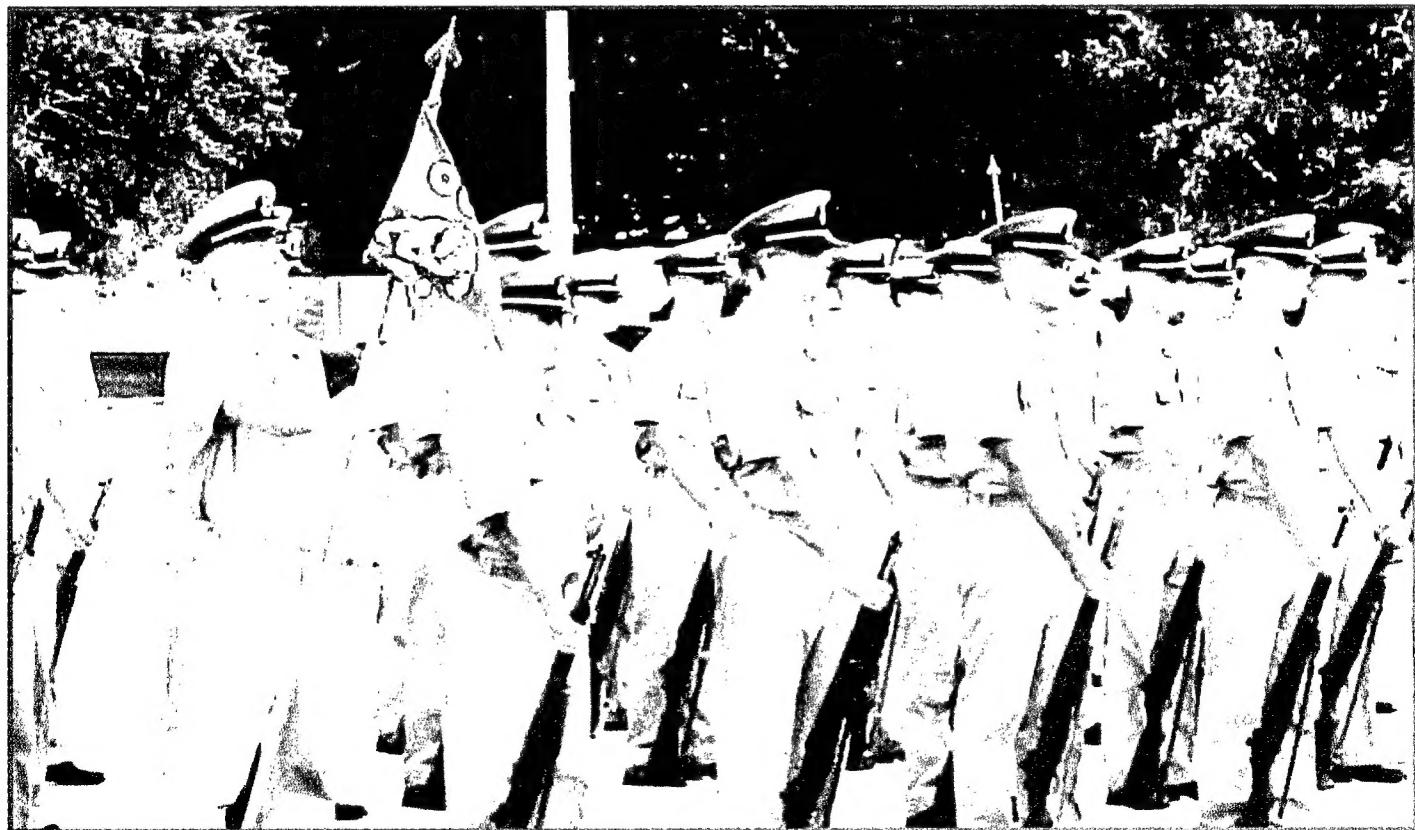
Once the information technology infrastructure is in place and curriculum reengineering has been completed, SWOS will execute a "pilot project" where TAOs will receive an interim qualification as the program matures. The ultimate goal, toward the end of the decade, is to fully qualify department head students at SWOS as TAOs. We are confident that with the training investment the surface warfare community leadership intends to make, qualification training will become a reality at SWOS and enable our officers to maximize the combat power of their ships in any maritime environment around the world. ■

Naval Officer Candidate School

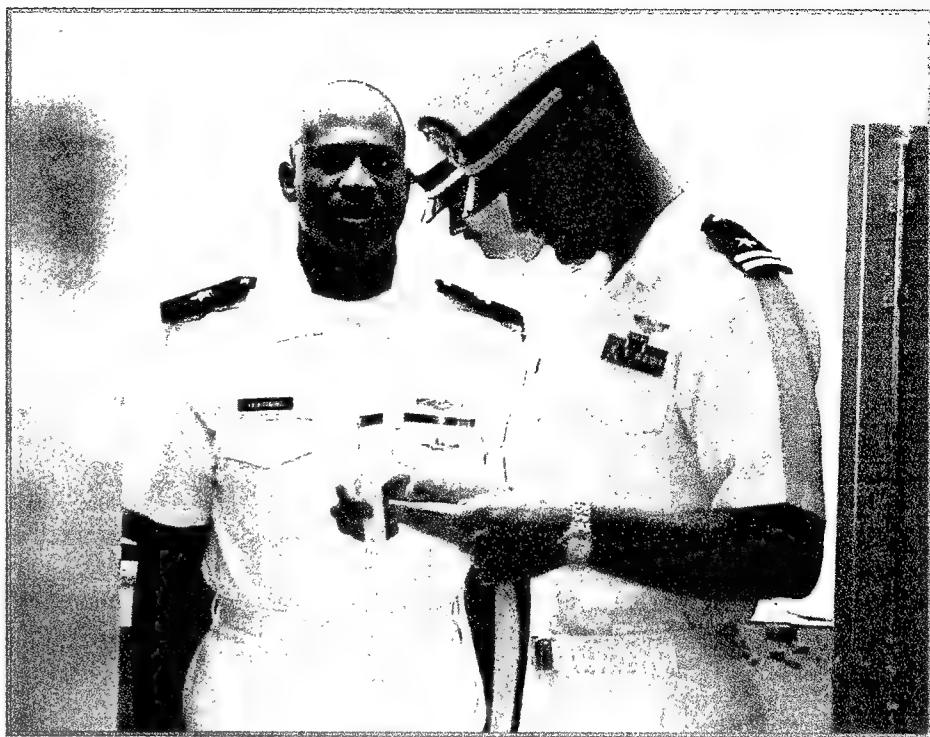
By ENS B.D. Hartman, Assistant Public Affairs Officer, NASC

“That I will well and faithfully
discharge the duties of the office
on which I am about to enter;
so help me God.”

▼ Naval officer candidates stand formation at NAS Pensacola, Fla. The Naval Officer Candidate School is the Navy's primary commissioning source for civilians and prior service enlisted members. (USN)



...There ends a challenging 13 weeks and begins a Naval career. Naval Officer Candidate School (OCS) is the Navy's primary commissioning source for civilians and prior enlisted service members who have earned college degrees. Part of Naval Aviation Schools Command (NASC) at NAS Pensacola, Fla., OCS provides an intense curriculum emphasizing academics, physical fitness, and military training.



▲ This former enlisted submariner's belt is examined closely by class officer LT Tony Barnes. (USN)

▼ Candidates standby for inspection by their class officer — a surface warfare qualified lieutenant — who oversees every aspect of their training. (USN)





▲ LT Darrel Bishop inspects the cover belonging to Officer Candidate (OC) Anne Marie Burg. (USN)



▼ Class Officer LT Tracy DeWitt and "Bull Ensign" Allison J. Myrick inspect their trainees. (USN)

Week one, or "Indoc," presents an unforgettable introduction—to a Marine Corps drill instructor and a new vocabulary consisting of only five phrases: "Yes sir;" "No sir;" "Aye sir;" "No excuse sir;" and "This indoctrination candidate does not know, but will find out sir."

The class drill instructor is responsible for training officer candidates in close-order drill, military bearing, physical fitness and inspection preparation. OCS class drill instructor GySgt D.G. White explained that "the class drill instructor is responsible for indoctrinating officer candidates into a military way of life." He indicated the importance of maintaining a constant sense of challenge throughout the program, and observed that "discipline is the hallmark of a naval officer, that's what we instill in the officer candidates."

In addition to the class drill instructor, candidates are trained by a class officer and a class chief petty officer. LT Barry C. Palmer, a surface warfare qualified OCS class officer, described that "the class officer serves as a primary role model and oversees every aspect of class training." Class chief petty officer FCCS (SW) Timothy J. Sheridan explained "our primary responsibility as class chief petty officers in training officer candidates is to establish the relationship between the division officer and the chief petty officer in the Navy." The class team prepares the OCS class, composed of approximately 50 candidates, for a number of evolutions during the program, which include military training tests in the fourth and ninth weeks, personnel inspections in the sixth

and tenth weeks, drill competition in the seventh week, in addition to the eight academic tests and weekly physical readiness tests.

Each OCS class comprises a broad spectrum of designators from pilots and naval flight officers to cryptographers, supply corps, civil engineer corps, intelligence, surface and submarine nuclear power and surface warfare candidates.

All candidates are instructed in seamanship, navigation, and damage control in the classroom and on the water. Yard patrol (YP) boats provide hands-on training to candidates in navigation, communication, and basic shiphandling. Candidate Officer Tony A.

DeCastro, a member of OCS class 24-00, explained that "the YPs provided excellent reinforcement for what we learned in the confines of the classroom." Exercises with the YPs include man overboard drills and dead reckoning navigation in Pensacola Bay. This challenging program culminates in the privilege of taking the oath of office and becoming a naval ensign.

Ensign Allison J. Myrick, "Bull Ensign" and an OCS graduate, said "OCS provided me with an overwhelming sense of accomplishment, which has enabled me to successfully confront and overcome the challenges that face every junior officer."

OCS lives up to its admonition that "only those with a strong desire to become Naval Officers will successfully complete Officer Candidate School," says Myrick. And for those who possess that desire, a commission in the world's finest Navy awaits. ■



▲ LT Tony Barnes inspects OC Charles Anning. (USN)



▼ GySgt D.G. White not only inspects the officer candidates, but also serves as their class drill instructor. (USN)

Officers in Thirteen Weeks

By LT Tracy DeWitt and LT Barry Palmer

Being an instructor at OCS provides motivated and upwardly mobile warriors an opportunity to shape tomorrow's Navy leaders.

In 1994, Officer Candidate School (OCS), then in Newport, R.I., merged with Aviation Officer Candidate School, and relocated to Pensacola, Fla. Today, OCS commissions unrestricted line, restricted line, and staff corps officers.

Classes usually commence every two weeks and are made up of from 50 to 60 candidates.

In 1999, nearly 1,000 officers received their commissions through this intense, 13-week program. Candidates come from all walks of life. Some enter the program straight from college while others come from the work force. Some candidates come to OCS from the Fleet.

Every minute at OCS is action-packed with no time for relaxation. From day one, instructors exhibit

and practice the Navy's core values and expect the candidates as future Naval leaders to learn and follow them as well.

Three unique individuals make this all happen—the class team.

Teaching naval leadership and professional development, while also serving as a role model, is what being a class officer is all about. With only 89 days to prepare each class of candidates for commissioning, an instructor's job is full of challenges. Many challenges are the same kind that the instructors faced in the Fleet as division officers: emergency leave; conduct problems; and a jam-packed training schedule. But, the job is more than just being a division officer, an instructor, or even a role model. The job is about being a mentor for the students.

For the seven or eight unrestricted line officers who serve as class officers, as well as every other OCS staff member, it's a matter of "walking the walk and talking the talk." This means exemplary and impeccable military bearing, perfect wear of the uniform, and maintaining the highest levels of physical fitness. Our students are young, college educated, highly motivated men and women who can easily detect imperfections or inconsistencies in an instructor's capabilities as a leader!

The instructors rely on their experiences from the fleet as division officers to help teach the candidates about "the real Navy" and what to expect when they get to the Fleet. It's not just telling sea stories, but sharing real life experiences that will help prepare candidates for the Fleet.

The development of officer candidates is based upon a team concept of training.

It merges the intensity of a Marine drill instructor with the experience of a Navy chief petty officer to quickly indoctrinate the candidate into the military lifestyle. It molds them into naval officers through instruction in how to march, salute, wear their uniform and succeed in the Navy.

A "fleet lieutenant," the class officer, heads up this team and is responsible for overseeing all aspects of candidate training. Each member of the team has a piece of the training pie that prepares the candidate for the oath of office on the 89th day of training.

Much of the training is stressful and intense. In addition to physical training, drill, and inspections, the candidates are also instructed in

eight academic courses: naval history; damage control; military law; naval warfare; seamanship; navigation; personnel administration; and engineering.

After 13 intense weeks, the graduates enter the Fleet, fresh and motivated, and ready to lead and perform at, or above, the level of their Naval Academy and Naval Reserve Officer Training Corps (NROTC) peers.

For LT Darrel Bishop, OCS class officer and graduate of OCS class 10-95, "One of the biggest enjoyments I get is standing on the bridge of the YP and giving one-on-one instruction to the conning officer. For most candidates, it is the first time they see relative motion and the forces that affect a ship's motion, and how they have to deal with it as a conning officer."

For me, the most appealing aspect of this job is that I have the

opportunity to make a positive impact on the future of our Navy. We know that the officers coming out of OCS will be out there when we return to the Fleet as department heads. Some of them might even be working for us one day. We need to know that they will be ready to lead, ready to fight and ready to take the heat, if needed.

Being an instructor at OCS provides motivated and upwardly mobile warriors an opportunity to shape tomorrow's Navy leaders.

*LT DeWitt is a 1994 graduate of Auburn University and received his commission through the ECP/NROTC program. He served on USS **John C. Stennis** (CVN 74) and USS **Stout** (DDG 55). LT Palmer is a 1994 graduate of the U.S. Naval Academy and served on USS **Carr** (FFG 52) and USS **Connelly** (DD 979). ■*

▽ LT Tracy DeWitt discusses an officer candidate's cover with him during an inspection. (USN)



Train to Qualify

A Modern Day Imperative in SWO Accession

By LT Mike Cummins **Prospective Surface Warfare Officer ensigns will soon embark on a bold new "train to qualify" regimen prior to joining the Fleet. Revolutionary changes in how the surface warfare community prepares new ensigns will produce surface warfare officers qualified to stand officer of the deck (OOD) and combat information center watch officer (CICWO) duties upon their arrival for their first division officer assignment.**

The next generation *Zumwalt*-class destroyers will require these new surface warfare officers (SWOs) to have a new level of training and qualification.

With DD 21's optimally manned crew, there simply will not be time to accomplish watchstander training while underway. Smaller wardrooms will require reporting officers to report already qualified and with a "full tool kit" in their seabag. The missions and the more challenging operating environments of the future will require officers far more proficient than any we have heretofore sent to sea.

The surface warfare type commanders and the Director, Surface Warfare (N76) have endorsed SWOS' proposal to begin curriculum and pipeline reengineering to

bring this plan to fruition. Over the next several years the surface community intends to make a significant investment in substantially upgraded training capabilities at SWOS, replacing outdated equipment with sophisticated, comprehensive PC-based reconfigurable trainers.

So how do such major educational and training challenges get implemented? How do we ensure Surface Warfare Officer School division officer course (SWOSDOC) training will be properly targeted at skill and proficiency development?

Though much of this transition is still on the drawing board, the foundation for "train to qualify" has actually begun. Over the last few years, the SWO training process has seen significant streamlining, especially with respect

to the personnel qualification standards (PQS) program. The reduction in SWO PQS shipboard requirements is a reflection of expanded training in SWOS classroom and simulator environments. The "train to qualify" plan will, later this decade, likely also incorporate a rigorous at-sea training experience, and reengineer the present day curriculum so that all first tour division officers will report fully SWO qualified and prepared to assume bridge and Combat Information Center (CIC) watchstanding assignments upon SWOS graduation.

The rationale behind the evolution from advanced familiarization training to qualification training is clear. According to CAPT Bob Moeller, Commanding Officer, Surface Warfare Officer School Command (SWOSCOLCOM), the change is one of operational necessity.

"Future maritime environments, ever more complex missions, and the evolution toward optimally-sized wardrooms as well as overall crew size optimization will demand the most talented, proficient wardrooms possible to maximize the combat power of every ship in the force. The foundation for such an aggregate wardroom skill set is up front qualification training so that upon reporting, every officer is prepared to make a full contribution to the mission accomplishment of the ship...on day one, not three, six, nine, or 12 months later. We've got

to get 100 percent performance out of every ship, all the time, and that level of performance begins in the wardroom. The 'train to qualify' reengineering effort at SWOS is designed to anticipate the level of proficiency officers will need in increasingly complex maritime environments and take the necessary steps to provide the required training."

So how are new ensigns going to acquire this proficiency in the future? An initial phase of this effort will likely leverage PERS 41's recent new accession initiative to send prospective SWOS to their first ships before starting SWOS-DOC. In the time aboard, perhaps as much as six months in some cases, officers can and are strongly encouraged to make significant progress toward SWO qualification. Although ship schedules will be different in every case, some of these officers may have an opportunity to achieve Combat Information Center warfare officer (CICWO) and perhaps officer of the deck (OOD) quals during this period. Following this initial period at sea, they will return to SWOS to complete the foundation of their training, including billet specialty training, before returning to their ships for duty. However long the initial pre-SWOS at sea period turns out to be, for every officer so assigned, the period is one to emphasize the skills that form the foundation of our maritime core competencies.

Armed with extensive shipboard experience following four to six months of in-depth at-sea training, the junior officers (JO) will return to SWOS with a substantial amount of PQS completed. Accordingly, a second phase of the transition to qualification training would be completion of SWO PQS not accomplished at sea, taking

advantage of the future sophisticated PC-based reconfigurable combat systems and engineering training capabilities to be installed, as well as advanced IT21 application tools like collaboration at sea (CaS) that will literally transform SWOS into an "extension of the waterfront."

During this phase of the transition a pilot project will be conducted to determine the required mix of at-sea and SWOS training to achieve qualification, prior to reporting to the ship for duty. This pilot project is also necessary to determine the characteristics of qualification training for the first wardrooms assigned to USS *Zumwalt* (DD 21) with a high degree of fidelity.

The course to SWO qualification obviously involves attaining qualification as an OOD. Can a junior officer qualify as an OOD in a trainer? CAPT Moeller believes that one of principal purposes of the "train to qualify" pilot project will be "to determine just how far we can ride the technology," recognizing that it may not be far enough; hence the pilot project to determine the mix.

"Since we have not tried to do this before, we need the pilot project to determine exactly what it will require to qualify an OOD in a mixed trainer and at-sea environment," said Moeller. MSI and enhanced MSI-like virtual reality tools either now or soon to be available will help to answer these questions.

Beyond the initiatives toward improved mission accomplishment and qualification training, future officers arriving fully qualified for duty offers several advantages over the current training approach. As CAPT Moeller points out,

"qualification training mitigates the effects of qualified officer turnover and transfers late in pre-deployment work up cycles. Second, it prevents ship schedules from impacting JO qualification timelines and the onset of dissatisfaction among JOs whose ship will not be as operational as a fellow JO's across the pier. Third, qualification training provides the earliest and strongest foundation for the intense professional satisfaction we feel as mariners and surface warfare officers. Because of the above, we build a stronger foundation for what will be positive retention decisions, one officer at a time."

A change of this magnitude in the approach to qualifying our surface warfare officers is not only a major philosophy shift, but the only practical approach to providing qualified SWOs for DD 21 class ships as well as optimally crewed legacy ships.

"For this to be viable we have to demonstrate, not assert, but demonstrate to the waterfront that this can be done," stated CAPT Moeller. "Every time an officer takes command, the new CO (commanding officer) accepts the qualifications of the officers at that command. If we as COs are prepared to do that, we can just as readily accept officers reporting to us qualified. The challenge and the opportunity is to create an enroute training environment which replicates what we've heretofore done exclusively at sea."

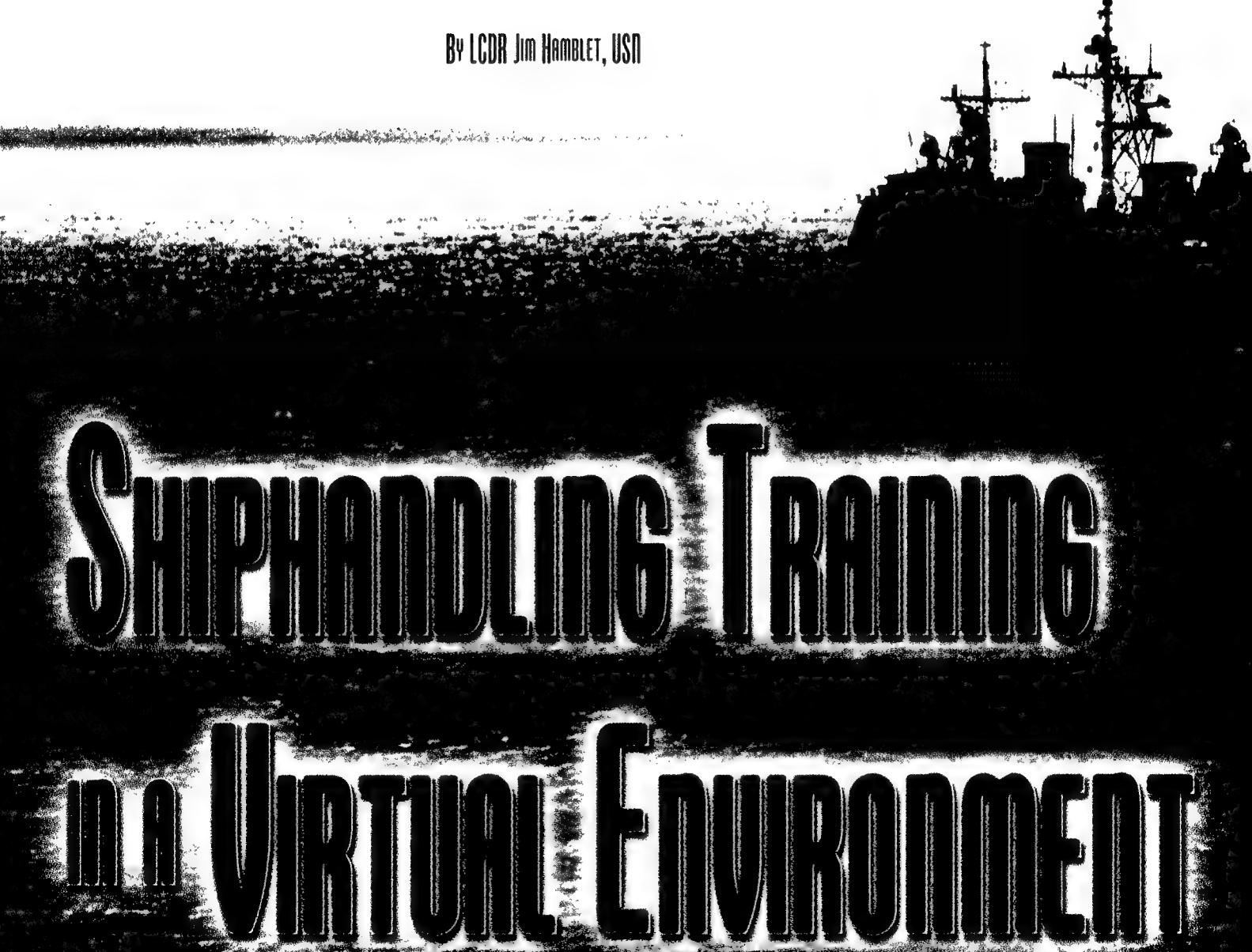
"SWOS's transition from what we've always known as advanced familiarization training to qualification training promises to be very exciting, so as we say, "if not at sea, SWOS is the place to be," CAPT Moeller concluded. ■

Junior Officers' shiphandling skills have traditionally been developed in the pilot house, during sea and anchor detail, division tactics (DIVTACS) and underway replenishments (UNREPS). These skills are routinely sharpened through the use of simulators equipped with large video screens positioned around mock bridges. The simulators have proven to be

very effective in filling critical training gaps that develop when a ship is faced with reduced steaming days.

Virtual environment (VE) technology has developed to the point that this training can take the next logical step: shiphandling training in a completely virtual environment.

By LCDR Jim Hamblet, USN



In the not-too-distant future, officers will be able to sharpen their shiphandling skills in the classroom, or in the wardroom, wearing a helmet-mounted display (HMD) connected to a personal computer. These trainers may eventually have a voice recognition capability to automatically respond to engine and rudder orders and an integrated intelligent tutoring system to coach the trainees during the training. Virtual shiphandling trainers can be loaded with several scenarios including harbor transits (for a variety of ports), pier work

with tugs, UNREP, anchoring and man overboard.

These VE trainers can potentially fill a wide range of training requirements. In the schoolhouse, newly commissioned officers will be afforded the opportunity to "cut their teeth" on shiphandling in a very forgiving environment that allows them to learn from their mistakes. Aboard ship, an officer can prep for an upcoming conning opportunity (such as getting underway from San Diego) by conducting a dry run with a virtual trainer

loaded with a San Diego pier work and harbor transit scenario. For ships that have been in overhaul and are out of practice conducting UNREPs, a couple of dry runs on the simulator by conning officers and the OOD can better prepare the watch team by building confidence, and sharpening shiphandling skills.

LCDR Hamblet is assigned to the Fleet Training Branch of the Office of the Chief of Naval Operations. ■

USS *Cape St. George* (CG 71). (PH3 David E. Carter II/USN)



Conning Officer Virtual Environment Reality (COVE) is a research and development project, funded by the Office of Naval Research (ONR), and administered through the Naval Air Warfare Center Training Systems Division in Orlando, Fla.

While virtual environment shiphandling training is already commercially available in large bridge trainers, COVE is an effort to enhance this technology by developing a system that incorporates voice recognition and coaches the trainee on a PC. These PC-based trainers will potentially be used both in the schoolhouse and aboard ship.

Central to its concept is the extensive integration of new artificial intelligence (AI) tutor techniques with state-of-the-art virtual environments. COVE is producing a unique blend of these two emergent technologies in a way that vastly increases the training effectiveness that

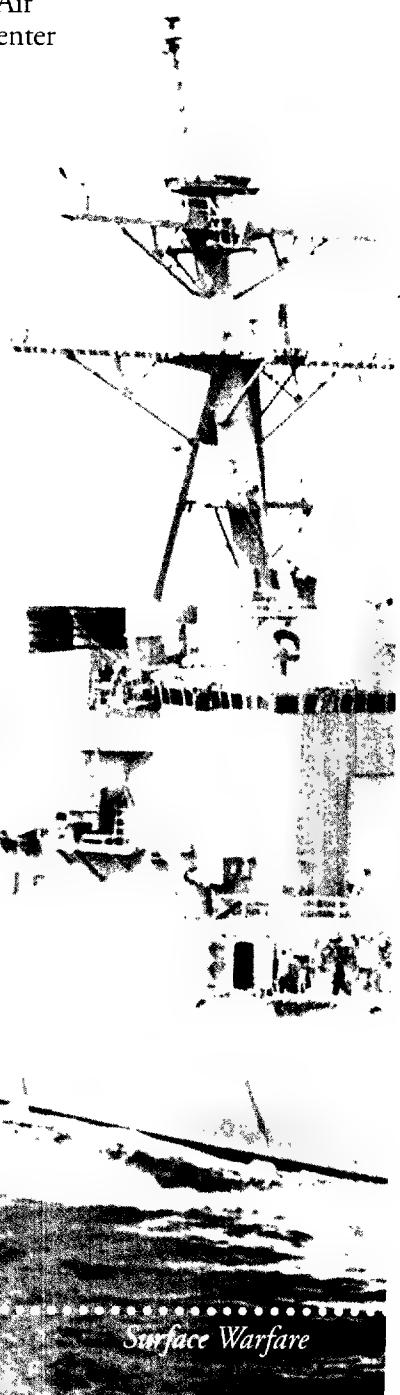
neither achieves by itself. The challenge is to develop VE technology of high enough quality to be able to see critical environmental cues capable of fitting on a PC. The challenges to intelligent tutoring technology are to monitor time-dependent perceptual and sensory-motor events, to run in real time, and to provide instruction for trainees ranging from novice to expert.

COVE's intelligent tutoring system has been tested at SWOS division officer school, in Newport, R.I., and promises to be an effective concept for future training systems. Currently the system is designed with a DDG 51-class destroyer and an AOE 6-class supply ship for underway replenishment (UNREP) simulation. During the upcoming year, harbor transit and pierwork will be added. VE shiphandling initiatives promise to provide optimal training at a relatively low cost in an environment of limited resources.

VELCAC

by LT James E. Patrey, USN

VE landing craft, air cushion (VELCAC) is a virtual environment trainer for LCACs that is currently in development by the virtual environment training technology team at the Naval Air Warfare Center Training Systems



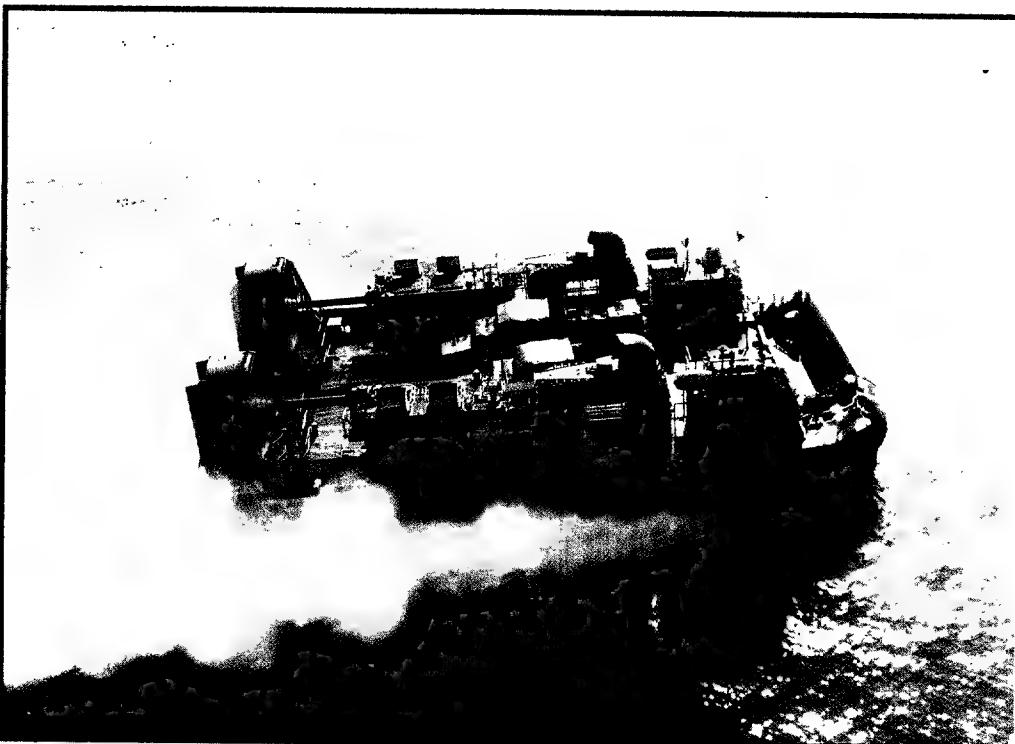
▼ USS Hopper (DDG 70). (CHP Greg McCreath/USN)

Division and sponsored by the ONR virtual environment program.

VE technology promises to prove effective for training every LCAC crewmember in a wide range of tasks including embarkation and debarkation, formation movement and participation in an amphibious assault.

VELCAC user interface currently consists of a see-through helmet-mounted display (HMD) through which the operator can see their actual hands, the yoke and engine and prop pitch levers, a virtual representation of the cockpit (complete with live instruments for the craftmaster), and an out-the-window view of the operating environment. Each position within the LCAC cockpit — craftmaster, engineer, and navigator — can train in this simulator. Trainees can view and control the VELCAC from multiple positions; assume a 'birds-eye' view and see the VELCAC from above or shift to a stern view and watch the bowthrusters rotate while maneuvering the craft.

Virtual crewmembers are being created to represent other LCAC crew positions. When training a craft navigator,



▲ LCAC 29 embarked on board USS *Anchorage* LSD 36 (PH1 David Miller/USN)

the simulation will include a virtual craftmaster to respond to course change recommendations. Further developments are planned to address interaction with cockpit instruments.

Since LCAC operations require the manipulation of various knobs, buttons, switches and levers, efforts are underway to create virtual representations for these — but

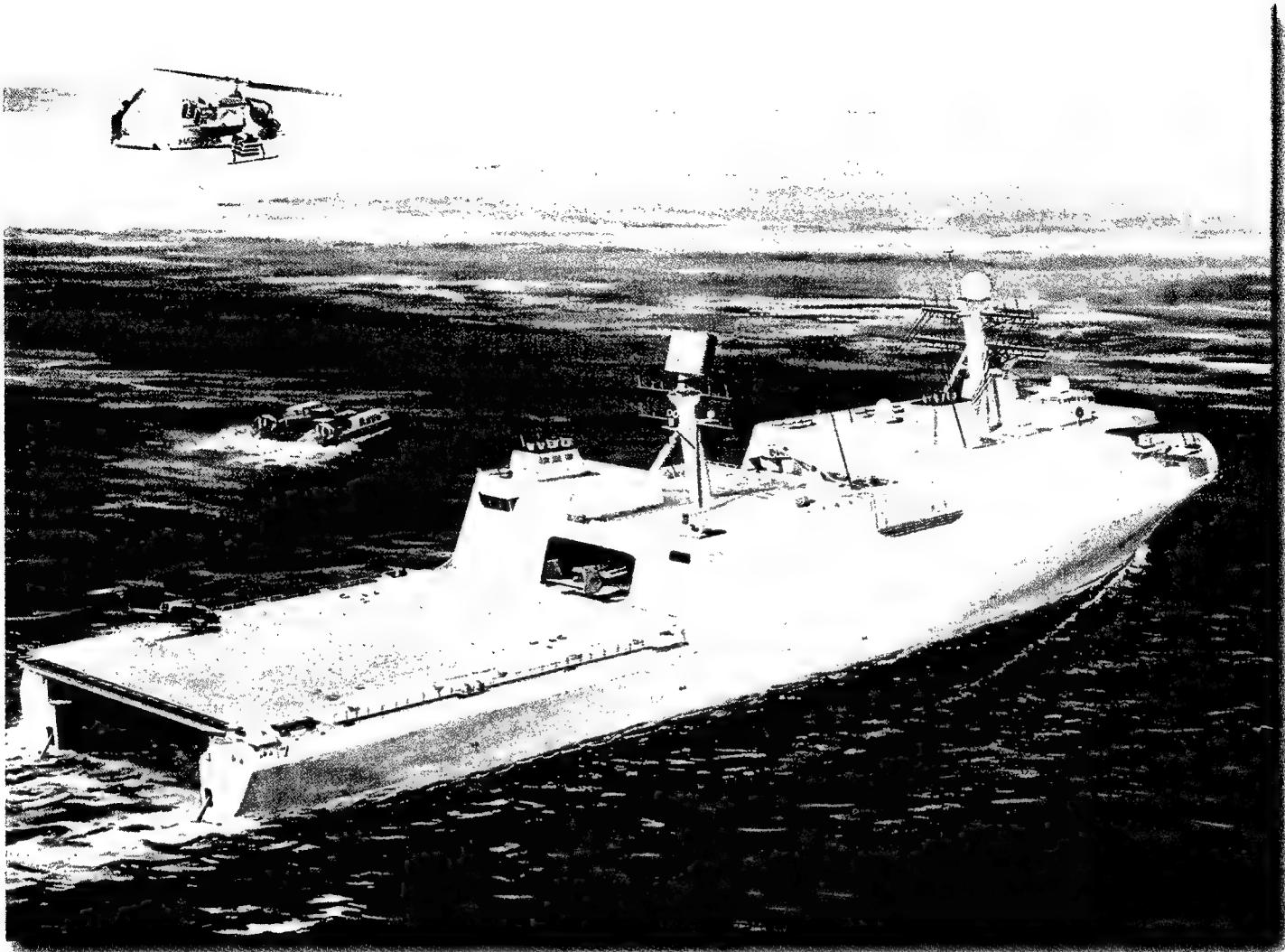
tons that you can see and feel, even though they're not real. Making virtual buttons may require the inclusion of haptics (touch enhancement devices used in virtual environments). Such devices may include a glove worn to give virtual buttons a realistic feel by pushing back against the operator's finger when they touch a virtual button. ■

TOTAL SHIP TRAINING FOR

LPD 17

The LPD 17 *San Antonio*-class ships are the functional replacement for the 41 ships of the LST 1179, LKA 113, LSD 36, and LPD 4 classes built in the 1960s. While the primary mission of LPD 17 class is expeditionary warfare, LPD 17-class ships will be called upon to conduct a variety of missions. They will figure prominently in Joint Task Forces that are participating in low intensity conflicts, peacekeeping missions and disaster relief/humanitarian assistance operations because of their troop and combat cargo carrying capacities.

▼ An artist's conception of the new amphibious transport dock ships. Former Secretary of the Navy John H. Dalton announced the first ship of the class will be named *USS San Antonio* (LPD 17) after the popular Texas city.



**By Dr. Katie Ricci
Naval Air Warfare Center Training Systems Division, and
Harvey Speight
LPD 17 Acquisition Logistics Manager**

Guided by the surface warfare training strategy, a comprehensive training plan was developed for LPD 17 to ensure that the officers, crew and embarked forces will have access to state-of-the-art training technologies.

To ensure that LPD 17 will meet its future demands, training was given a prominent role in the ship's design. This influence is evidenced by the existence of dedicated training spaces, empowered through the ship's wide area

network (SWAN) and the Total Ship Training System (TSTS). The importance of training is further accentuated by the introduction of a training department — personnel dedicated to the training needs of LPD 17. Thus, crew-training systems were included in the ship design, as a forethought, not an afterthought.

INDIVIDUALIZED INSTRUCTION

LPD 17 training exploits the shipboard electronic infrastructure

to enable ready access to a continuum of training materials. When crewmembers first step onboard ship, their personalized training agenda will be ready to guide them through familiarization training, indoctrination training and further proficiency training, as appropriate. While formal training areas are available — such as the state of the art learning resource center and the electronic classroom — access to training materials will be available from tactical consoles or workstations throughout the ship.

The TSTS provides a centralized coordination and management of shipboard training — a powerful tool for the officer and four enlisted personnel that will comprise the ship's training department. TSTS includes a database of shipboard training requirements plus team and student training accomplishments, including formal schooling, ship training requirements, shipboard training assignments tied to watchstations, and personnel qualifications standards (PQS) tracking. TSTS interfaces with other shipboard electronic systems via the SWAN. Thus, students can complete courses "on-line" with the course completion automatically entered in the sailor's training record. Through the same electronic infrastructure, crewmembers will have access to a variety of personal development courses — enabling sailors the opportunity to earn college credit or participate in additional career enhancing training.

For certain, LPD 17 training has embraced the electronic environment. Similarly, from a maintenance perspective, the ship's electronic technical manuals (ETMs) and interactive electronic technical manuals (IETMs) provide crewmembers rapid access to technical documentation. ETMs and IETMs allow documentation to be updated in a timely manner — thus eliminating the burden of outdated information and cumbersome change pages. In addition, using digital data alleviates weight and storage restraints. Moreover, these ETMs and Interactive IETMs will electronically link directly to training materials. Through the LPD 17 SWAN, these resources will be available to technicians *when* and *where* they are needed.

LPD 17 has also recognized the wealth of information and

Team performance is the backbone of the Navy's ability to fight effectively.

experience gained by individuals designated as pre-commissioning (precom) crews. Instructional material provided to these crewmembers will be available for follow-on crewmembers as well. By capitalizing on electronic training resources (i.e., interactive multimedia instruction [IMI]) developed for precom crews and during the precom process, follow-on crewmembers can obtain similar instruction once onboard ship. Moreover, these electronic training resources will be available to transition back to Navy schoolhouses where future crewmembers will be able to experience training for the actual systems onboard LPD 17-class ships prior to arrival.

These training resources will help decrease the skill and knowledge gap that is traditionally associated with precom crewmembers versus follow-on crewmembers.

TEAM TRAINING

Team performance is the backbone of the Navy's ability to fight effectively. Several key enhancements to shipboard team training are available to support the readiness of LPD 17-class ships and build a team of experts into an expert team. Three embedded onboard training systems available for team training include the ship

control system (SCS), engineering control system (ECS) and the battle force team trainer (BFTT).

The SCS onboard training system will enable seamanship training team members to initiate "ship control casualties," such as loss of steering control, remotely from a computer console. The ECS onboard training system will enable engineering and damage control training team members to initiate "casualty indications" throughout the ship from a remote "control" console.

BFTT will stimulate the combat direction system and associated weapons and sensors. One enhancement to the currently planned team training system is the capability to provide integrated team training (ITT) linking engineering, damage control, combat systems and ship control watchstations to participate in a combined training scenario. Stimulated through the BFTT system and the TSTS problem controller, ITT will allow simultaneous scenario-based practice for shipboard teams.

MARINE CORPS TRAINING

The LPD 17 plan for onboard USMC training includes access to all of the LPD 17 organic training features as well as the infrastructure

to support deployable USMC training systems. Existing USMC IMI required for deployment will be loaded on the TSTS for delivery to embarked USMC personnel. The LPD 17 TSTS will also manage, schedule, and deliver training for embarked USMC personnel. Additional LPD 17 organic systems available for delivery of USMC training materials include the learning resource center for individual self-paced training and the electronic classroom for delivery of computer managed instruction.

Another feature of the LPD 17 USMC training program is to provide the necessary shipboard infrastructure to support USMC deployable training systems. USMC training systems will be configured onboard the LPD 17 within designated areas of the ship. USMC weapon and vehicle training systems that are identified for deployment on LPD 17 Class ships include:

- indoor simulated marksmanship trainer (ISMT)
- precision gunnery training system (PGTS)
- Javelin basic skills trainer
- closed loop artillery simulation system (CLASS)
- combat vehicle appended trainer (CVAT)
- advanced amphibious assault vehicle (AAAV)

CONCLUSIONS

The Total Ship Training Program for LPD 17 will make it easier for shipboard leaders to train their personnel by providing the framework that a successful command training program can be

built upon. There can be no substitute for leadership and vision when it comes to shipboard training and the LPD 17 training systems will be in place to support that leadership.

Officer, enlisted and embarked personnel will be offered wide-ranging training opportunities onboard ship. This will include shipboard orientation, familiarization, refresher, remedial, individual and team training, and will provide a versatile shipboard training program oriented towards maintaining high levels of combat readiness. Training will address the knowledge and skills required to successfully perform tasks in support of combat systems, engineering, maintenance,

damage control, navigation and administration.

The LPD 17-class will have significantly more onboard team and subteam training available than is currently available onboard naval vessels today. The LPD 17 is being developed and constructed with an affordably supportable life cycle cost objective. Long-term life cycle costs have been taken into consideration in the development of training in an effort to reduce the overall training costs.

Designing a complete training system before ship construction begins will allow training costs to remain lower for maintenance thus reducing life cycle costs. ■

**The Total Ship Training
Program for LPD 17
will make it easier for
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A Sailor's Day aboard USS San Antonio

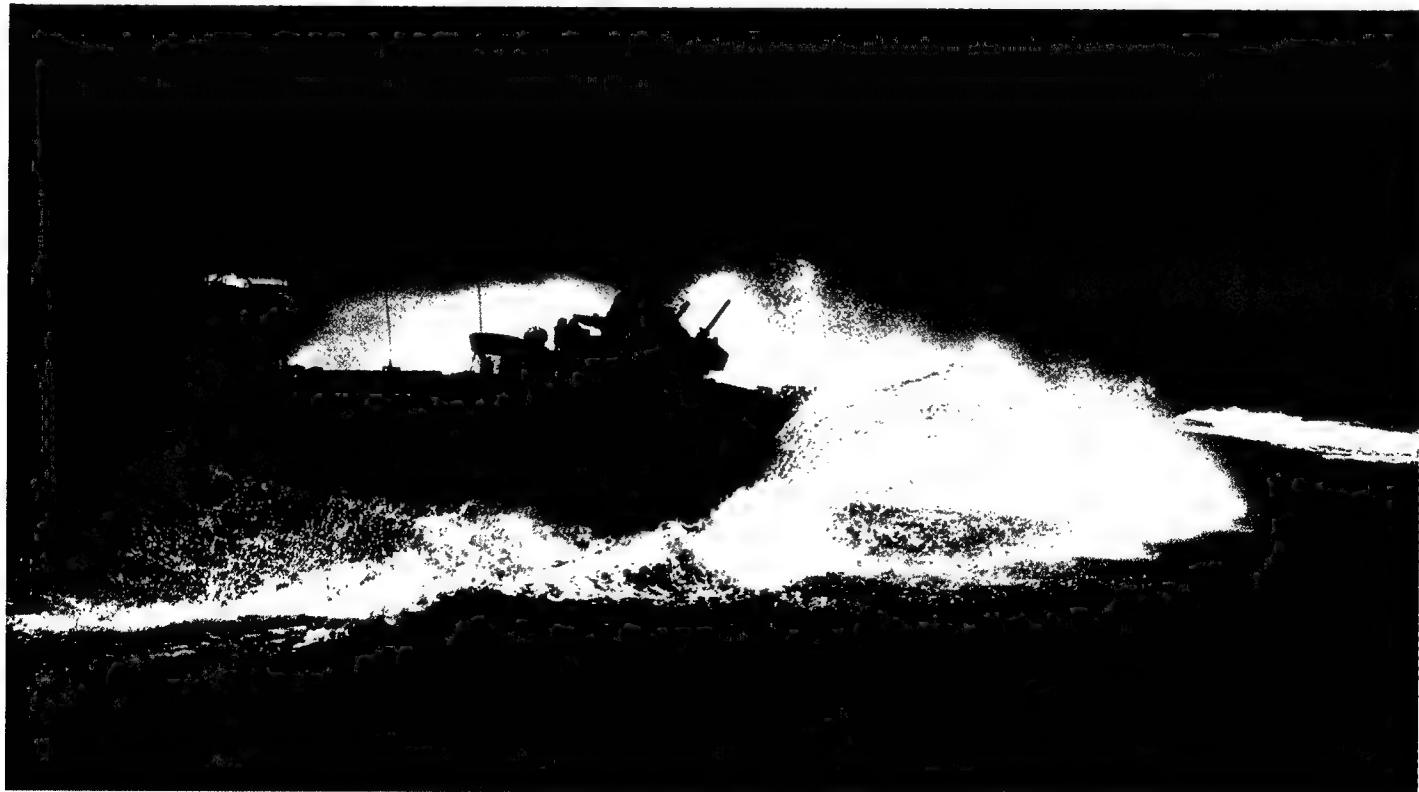
By CAPT Kendall King, USN (Ret.)
American Systems Corporation

"In the old amphibious Navy our bunks were canvas, stacked five high. In the tropics, we often slept topside on the deck. Showers were a luxury and water hours a fact of life. The troops had it rougher as we would bring our plywood landing craft alongside and they would climb down the cargo nets. Then we would perform endless wave forming circles before we headed the few miles into the beach. Being a 'Gator' was a challenge back then."

Petty Officer Lopez remembers these words and the other stories that her grandfather used to tell about his amphibious ship from World War II. The amphibious Navy is still a challenge, but a lot has changed and will change by the year 2005. BM3 Lopez will be serving aboard the new amphibious transport dock, USS San Antonio.

The USS *San Antonio* (LPD 17) is the first of the class of 12 amphibious transport docks that will replace the LPD 4 class. With a length of 684 feet and with a beam of 105 feet, the LPD 17 is more than 50 percent larger than the LPD 4 class ship it replaces. In fact the LPD 17 has more vehicle stowage space than a

▼ Marines from the 3rd Amphibious Assault Battalion, 3rd Marine Division take to the water in an Amphibious Assault Vehicle (AAV) during training of the Philippine Marines at Marine Base Ternate during Exercise Balikatan. (U.S. Marine Corps photo by Sgt Jason M. Carter)



LHD, can carry two LCACs or a platoon of Marine amphibious assault vehicles and can routinely support over 699 troops.

The ship is diesel-powered, using an improved version of the engines operated onboard the LSD 41 Class, uses all-electric auxiliaries, and its well deck can ballast down to launch and recover traditional landing craft. The ship also has two medical operating rooms, an eight bed intensive care unit, sixteen-bed ward and dental facilities.

Bringing a landing craft along side the ship is also a thing of the past. With its well deck and large flight deck, LPD 17 will deploy landing craft air cushion (LCAC) vehicles, new Marine Corps advanced amphibious assault vehicles (AAAVs) and the MV-22 Osprey vertical take off and landing aircraft. The ship's boats are all rigid hull inflatable boats (RHIB) and the ship has room for sea-air-land forces (SEAL) or Marine RHIBs.

USS *San Antonio*'s landing forces and vehicles will move ashore at high speed from over the horizon.

For Petty Officer Lopez, quality of life is one of the biggest differences from her grandfather's days. Her berthing compartment has a small lounge, adjacent head, and the new sit-up berth. The bunks themselves are normal length and are stacked three high, but have room for the occupant to sit up. There is a magazine rack, fold down reading and writing surface, individual light, electrical outlet and ventilation fan. There is also 40 percent more storage room than a Northampton bunk and



▲ A Marine Amphibious Assault Vehicle (AAV) rushes a Pohang Korea area beach during a combined beach assault exercise on October 29, 2000. The exercise was held at Tak San Ri Beach near Pohang in Korea as part of Exercise Foal Eagle 2000. (U.S. Navy photo by (NAC) David C. Mercil)

even space to store boots and covers.

Her berthing compartment has computer drops. On LPD 17, the shipboard wide area network (SWAN) links administrative, engineering, combat systems and command control and communications together using fiber optic technology. BM3 Lopez can access the SWAN through any of the 400 drops around the ship including those in the deck office and her berthing space, and use it for work, training or sending and receiving e-mail.

No one will be sleeping topside or worrying about water hours either. LPD 17 has 1,400 tons of air conditioning that will keep Sailors, Marines, and electronic equipment cool. Best of all, with the LPD 17's reverse osmosis water generating plant producing and storing 72,000 gallons of water per day, BM3 Lopez will be able to shower after work or after a workout in the physical fitness space without worrying about water hours. A typical day in **USS *San Antonio*** has come a

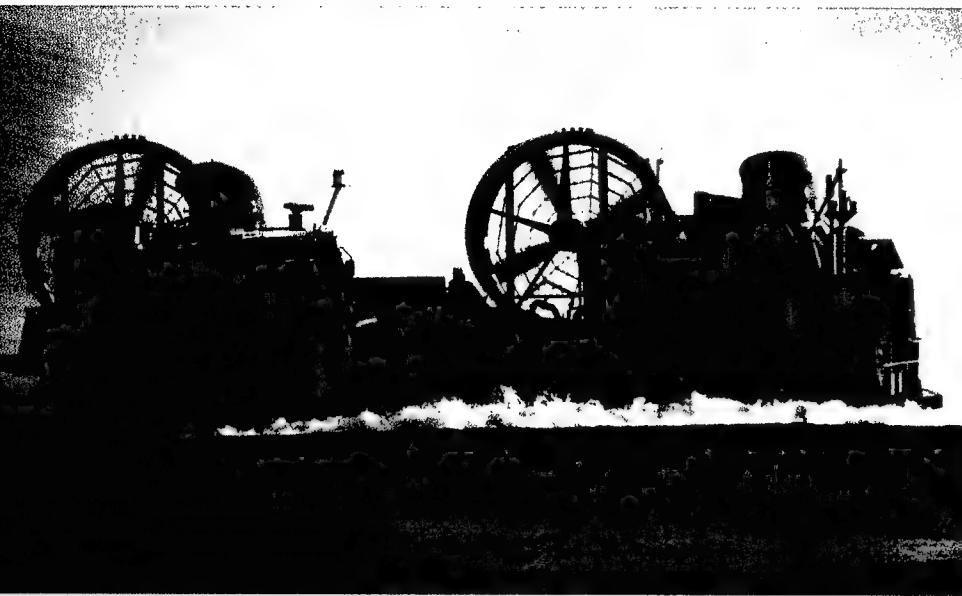
long way from her grandfather's generation.

2005

Petty Officer Lopez's day might start with her sea and anchor detail station on the forecastle. The LPD 17's forecastle has a different look. There are no lifelines because the five-foot bulwark helps reduce radar cross section signature. The forecastle team uses wireless communications and BM3 Lopez particularly appreciates the water nozzles in the hawse pipe that wash down the anchor chain as the anchor is raised.

Then the words "Secure from special sea and anchor detail. Set the regular underway watch. On deck watch section eight, condition four." Now it is time for watch and Petty Officer Lopez heads to the ship's pilot house which is like no other amphibious ship.

In the pilot house, the three members of the section eight watch team take their places. The designers planned the LPD 17 bridge to accommodate the traditional full



▲ ACU 5 based out of Sasebo, Japan lands an LCAC (landing craft, air cushioned) on Dogu beach shortly after departing USS Essex (LHD 2) about 25 miles out to sea on October 30, 2000. The LCAC played in a D-Day mobile fuel distribution system concept demonstration for Exercise Foal Eagle 2000. (U.S. Navy photo by PH2 (NAC) David C. Mercil)

manning for such evolutions as special sea and anchor detail, but it also supports reduced manning by as few as three watch standers if the captain so chooses. In fact, a placard near the helm reads "Designed in accordance with Det Noske Veritas (DNV) W-1 classification requirements" — the international commercial criteria for having one watch stander in the pilot house. However, on LPD 17 the captain relies on three watchstanders for routine watches, so using the ship's integrated bridge system (IBS), Petty Officer Lopez, the officer of the deck, and the signalman/quartermaster can safely "drive" the ship.

The navigator computed and then laid out the ship's track in the voyage management system and the helm will automatically respond to the computerized directions. The OOD can monitor the navigation picture, the voyage management system, and even the superimposed radar picture from the integrated bridge consoles. The

OOD can even monitor the engineering control system from the bridge through the shipboard wide area network (SWAN) or, in case of an emergency, damage control central functions could be performed from the pilot house using the same consoles.

The IBS will also automatically interact with global positioning system (GPS) satellite fixes, so that much of the quartermaster's effort is in monitoring the displayed navigation picture on the electronic chart. Still today, he is taking radar fixes at the SPS-73i console, (100 percent redundant commercial radar that replaces the SPS-64 and 67) as they move away from land and comparing them to the electronic chart. As for BM3 Lopez, she moves between the helm console, where both helm and lee helm controls are situated, to the boatswain's mate of the watch station where the ship's alarms, 1MC, interior communications and the centralized switch for lighting are placed.

Expeditionary Warfare will still be a challenge, but Petty Officer Lopez knows that her grandfather would approve of the USS San Antonio (LPD 17).

After watch, Petty Officer Lopez heads to the mess decks to eat. LPD 17 has consolidated food service into one galley so that everyone enjoys the same entrees with salads and beverages from the beverage bar. The enlisted dining facility seats more than 180 Sailors which may seem small for a ship with a crew of 361, and 699 embarked Marines. The ship designers electronically modeled food service and eating so everyone eats in a timely manner.

Prior to the afternoon's turn to, BM3 Lopez can visit the LPD 17's "mall." In this area of the ship, the LPD 17's design has centralized various services for the crew and embarked forces. These include the ship's store, various vending machines, an automatic teller machine or two, and the ship's barber shop. The ship's barbershop includes sinks for wetting women's hair, a modification adopted after a fleet input to the design team in 1996. Another enhancement is the brightly colored "stratina" deck tile.

Installed throughout the ship, it is particularly noticeable in the small area where even the high volume of traffic does not necessitate significant maintenance to keep the deck shining.

In the afternoon, Petty Officer Lopez will be supervising a work detail along the well deck wing walls to ensure that everything is clean and secure for sea. In the well deck overhead, LPD 17 has incorporated various corrosion control methods, including special paints that will prevent much of the special "paint-chip-and-paint" challenges to any amphibious deck department. The well deck's synthetic batter boards and decking will reduce workload as well.

Next, her deck division will gather in the ship's electronic classroom. USS *San Antonio* will be replenishing the next day so this group is using the classroom for interactive UNREP training. BMC Jones from the ship's training department runs a safety brief and then a video of their last UNREP evolution. Just like watching instant replay, the training department representative is able to use the videotape to show strengths and weaknesses from their previous effort.

Next the LPD 17's training department representative uses the total ship's training system interactive computer simulation to allow the crew to "walk through" their roles in UNREP. Each member of the team directs or executes action just as if they were actually alongside the logistics ship. One of the riggers mistakenly moves the wrong way around the rig and Petty Officer Lopez brings this to his attention — a lesson learned safely on a computer model instead of dangerously in the middle of tomorrow's actual replenishment.

After the evening meal, Petty Officer Lopez may visit the learning resource center to interactively study a professional course on the computer. She may visit the physical fitness center or watch the ship's evening video in the crew's lounge that is integral to her berthing compartment. She may even e-mail her parents from one of the berthing space's SWAN drops.

On another evening, she may attend a college class, which meets every other night with an instructor teaching from thousands of miles away in Norfolk via teleconference. Of course, if she has a scheduling

conflict or the ship's operations preclude participating in the class, she can check out a video copy of the class that she missed for viewing at a later time. Tonight though, she may just relax in her sit-up berth, reading or writing, knowing that she will get a full night's sleep — section eight will not be back in the pilot house until the day after tomorrow. "Lights Out."

2000

The *San Antonio*'s keel was laid on December 9, 2000. Still the ship's designers, working with input from actual Fleet and Marine Corps operators, maintainers and trainers, are focusing on making LPD 17 combat ready and warrior friendly. Sailors and Marines in LPD 17 will be far more comfortable, more efficient, and better trained in this first new amphibious ship of the 21st century.

Expeditionary warfare will still be a challenge, but Petty Officer Lopez knows that her grandfather would approve of the USS *San Antonio*. ■

► Marines from the 3rd Amphibious Assault Battalion, 3rd Marine Division take the beach in an amphibious assault vehicle (AAV) during the main beach assault with Philippine Marines at Marine Base Ternate during Exercise Balikatan. Exercise Balikatan, which is Tagalog for "shoulder the load together," was the first joint exercise featuring troops from both the United States and the Philippines since 1995. (U.S. Marine Corps photo by Sgt Jason M. Carter)





THE CALL TO RETURN

ACTIVE DUTY

By LCDR Irene Smith, USNR

Leaving active duty for the civilian world can be an exciting proposition. A change to a new world of employment brings the opportunity to discover latent talents of fashion accessorizing and the chance to compete against twenty somethings with MBA's that opted for the bright lights and big bucks of corporate life.

It all can be pretty exhilarating, until, you find out after a few months on the job that your boss is a phony, the hours are as long as you spent on sea duty and Dilbertville is a real place. You are bored with your job, management is a cliché and there is no relief in sight. After all, you have been hired as an information management specialist and that is all you are expected to do. No chance to take on additional responsibilities, manage people, let alone an opportunity to try something new.

You begin to question your decision to leave the Navy. Maybe you acted too rashly and didn't really consider the positive aspects of being in the Navy. Maybe you let yourself be swayed by the boasts of your college roommate, the one who went on to become an investment banker

and oh, by the way, is on his third wife. You discover that even though that highly attractive corporate benefits package with the \$70,000 paycheck looked pretty lucrative, it doesn't go quite as far as you thought it would with all the taxes being taken out of it and without the tax benefits of your former basic allowance for quarters (BAQ) and basic allowance for subsistence (BAS).

Well, you're not alone. Many former surface warfare officers have found themselves in a similar place, frustrated at being a civilian and remembering that life in the Navy, although difficult at times, offers camaraderie and a strong sense of purpose not often found in corporate boardrooms.

Some missed the excitement of being at sea and the challenges it brought. Some have even taken their doubts and misgivings a step further, by turning their back on their new civilian life and returning to active duty to resume their career in the Navy.

Broken service is not necessarily the kiss of death for naval careers. Several flag officers, notably the new chief of naval operations ADM Vern Clark and ADM Dave Jeremiah

(Ret.), former vice chairman of the joint chiefs of staff, have left active duty, and returned to become highly successful Navy leaders. Their stories are proof that strong opportunities exist for good people who "took a break" from active duty.

At the Navy Personnel Command in Millington, Tenn., detailers are eager to hear from former SWOs wishing to return to active duty. Since October 1999 12 former SWOs have been permitted to return to active duty. Six of these officers are currently students in department head school at SWOS, Newport, R.I. All of them are enthusiastic about being back in the Navy and share dissatisfaction with their experiences in the civilian work force.

"I am going back to do what I love to do, which is being a SWO," said LT Angel Cruz, currently a department head student at SWOS. "You miss that feeling of standing midwatch as officer of the deck (OOD). If you've never done that before, you don't know what you're missing."

An officer candidate school (OCS) graduate and U.S. Naval Reserve (USNR) officer, Cruz left the Navy in 1993 as a result

of military downsizing. Having worked for both the Navy and AT&T, Cruz defends the Navy's work environment.

"The responsibility you have as a civilian is nothing compared to the responsibility the Navy gives you. In the civilian world you always have someone looking over your shoulder. In the civilian world, people do their eight hours and go home. The people I worked with in the Navy were second to none. People are a lot more motivated in the Navy."

A Naval Reserve Officer Training Corps (NROTC) graduate from Rensselaer Polytechnic Institute, LT Chris Van Avery was the first lieutenant onboard the USS *Saratoga* (CV 60) in the fall of 1993 when he left the Navy due to family hardships. It was a tough tour to start a surface career on, he said, thrown in a carrier environment filled with career naval aviation types. After leaving the Navy,

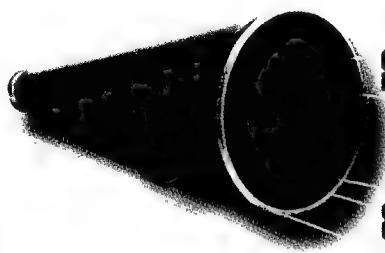
kind of technology. The novelty wears off and even though you may switch jobs and learn a new computer code, you are still only a network systems engineer."

As for job stability, Van Avery found the civilian world far more unstable with its demands for relocating. "The high tech world is a lot worse than the Navy when it comes to moving. You are moving every two years and that gets old fast. Some software developers get new jobs every six months. Even though I doubled my salary in five years, I discovered that pursuing money didn't interest me and something was missing in the computer world. There isn't the progressive increase in the responsibility and ability to lead people as in the Navy. There is no substitute for the people and the adventure you find in the Navy."

A common theme among the lieutenants returning to active duty was their affiliation with the naval

LT Troy Dotson applied for the SWO recall after completing a one-year recall last year on the USS *John F. Kennedy* (CV 67) as the assistant weapons officer.

"I was working as a mail carrier for the post office in Columbus Ohio. Although the money was good, especially with the overtime, I wasn't going anywhere with the job. There were no real promotion opportunities. To me the biggest thing I found wrong in federal service was the glaring way the supervisors were trying to keep their jobs rather than doing their jobs. I found an unwillingness to fix problems. Management did not take inputs from subordinates. While working for the Postal Service, I got addicted to the overtime. I worked six days a week for 11-12 hours a day. I can go back on active duty and have better working conditions, even with four-section duty. As for the SWO bonus, it was a 'benny.' I was not expecting it and had I gone TAR (training and



LIFE IN THE NAVY, ALTHOUGH AT TIMES DIFFICULT, OFFERS CAMARADERIE AND A STRONG SENSE OF PURPOSE, NOT OFTEN FOUND IN CORPORATE BOARDROOMS.

Van Avery became an information system manager and network engineer. Van Avery described himself as "one of those high-tech, high-paid people who everyone wants to emulate when they get out." The problem was there wasn't much of a challenge Van Avery said.

"Once you master the gee whiz technology, you get into a rut because the company you are working for specializes in only one

reserves. Four of the six officers had been RIFed (reduction in force) due to the downsizing of the military in the early 1990's and did not want to leave the Navy. Affiliating with the reserves helped them retain their ties to the Navy and allowed several of them to take advantage of extended active duty training periods.

administration of reserve) I wouldn't have gotten it."

An attractive enticement to SWOs returning to active duty has been the SWO continuation pay. The surface warfare officer continuation pay (SWOCP) is a \$50,000 retention bonus designed to entice junior officers to stay in their

community to complete their full department head tour. The success of the SWOCP has been dramatic. Since its inception in October 1999 more than 1,217 surface warriors have signed on for the program. Commanding officers are being asked to stay engaged with their officers to reach their goal of 1,437 contracts for FY 00. Presently the Navy stands at 85 percent of its goal.

LCDR Paul Stader, second tour department head detailer believes that the recent incentives in the surface warfare community have helped retention and influenced people who have gotten out of the Navy and to return.

"I think that some of the returned officers who had been on the outside and had plans that didn't work out. The Navy has been getting a lot of positive press recently with initiatives to

For the officers who have returned to active duty, there have been some significant changes in their Navy while they were gone. One of the biggest changes they noted was the gender integration and mixed crews of ships.



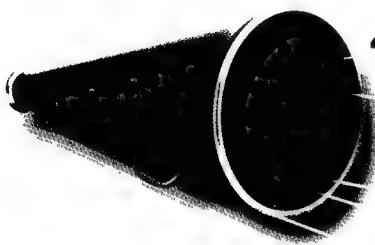
▲ Life in the Navy, although difficult at times, offers camaraderie and a strong sense of purpose not often found in corporate boardrooms.

LCDR Richard Hess who enlisted in the Navy in 1982 and received his commission from the enlisted commissioning program sees

Here at the department head level, I see the upper echelon of commanders and captains taking a genuine interest in seeing us succeed and ensuring that we know our jobs before we leave here, as opposed to just doing our jobs. The SWO bonus also makes it very attractive. The laptops and palm pilots they distributed to students help make our time at SWOS and out in the Fleet more conducive to success."

Another difference Hess observed is the pride in the chain of command.

"In the civilian world people don't have established chains of command. In the Navy, it is very clear cut. You know who your boss is. In the civilian world, it's a lot murkier and isn't as clearly defined. People will circumvent a chain of command to achieve



"THE RESPONSIBILITY YOU HAVE AS A CIVILIAN IS NOTHING COMPARED TO THE RESPONSIBILITY THE NAVY GIVES YOU."

LT ANGEL CRUZ

improve the quality of life, foster innovation, embrace change and address job satisfaction issues. People discover that flying a desk wasn't as much fun as they thought it would be. The SWO bonus isn't the only reason people return to the Navy, but it's a factor, and it has made a difference."

a friendlier Navy, which is more oriented to taking care of its people.

"I didn't see it before when I was in during the '80's," he said. "People weren't as excited as they are today — it was mostly drudgery."

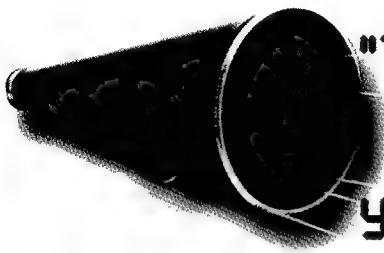
what they want to do. There is a lot more office politics and people don't necessarily follow your directions. In the Navy, people have to follow your directions and it's refreshing."

For LT Van Avery the changes in the last seven years have been dramatic.

"Women on combatants is a big change for me." Another observation from staff and peers is that the adversary relationship between division officers and department heads

integrated and enhanced information technology as well as Computer Base Technology interface. The goal is to complete as much of the SWO personnel qualification standards (PQS) as possible before arriving to the ship.

"We have lots of opportunities that are not being filled because no one knows about them. The surface warfare community offers the greatest opportunity for postgraduate education. If you have an officer qualified for a curriculum, we will make every effort to get him or her a quota. The information systems



"THERE IS NO SUBSTITUTION FOR THE PEOPLE AND THE ADVENTURE YOU FIND IN THE NAVY."

has diminished substantially. When asked about any concerns or fears about his broken service, Van Avery said, "one thing that had me reluctant was the urban legend I had heard while in the reserves a break in naval service and your career is over. I have a lingering doubt of whether selection boards can change that." Van Avery is optimistic though. In the current department head class there are three other students returning to active duty after a break like him. "That is between seven and eight percent of the class," he said. "It will help force the issue and hopefully the boards will take this into account and evaluate. After all, they came back when the Navy needed them."

In the last eight months the surface warfare community has taken dramatic measures to stem the hemorrhage of junior officers from its ranks. At SWOS, efforts to re-engineer the curricula to support billet and watchstander proficiency continue. Palm pilots and laptops are issued to division officers and department heads and their use has been incorporated into the curriculum to give students access to information technology. The division officer program will focus on more

One new initiative being introduced is to engage those officers who have submitted resignations. A flag officer will contact that resigning officer and ask what it would take for them to stay in the Navy and withdraw their resignation. The Bureau of Personnel (BUPERS) is also contacting officers by letter six months after their separation to inquire if they would like to return to active duty. This new approach is reaping success. Since January 2000, 22 officer resignations have been withdrawn.

"We offer a compelling case for people sitting on the fence, deciding whether to stay or go, said CDR Patrick Allen, head surface junior officer assignments. We can send people overseas or to Naval Reserve Officer Training Corps (NROTC) units. We have these billets and nobody has asked about them. We want junior officers to know they have lots of choices where they can go for their shore assignment. Postgraduate school is another option for SWOs looking for an advanced education.

and operations curriculums are very popular.

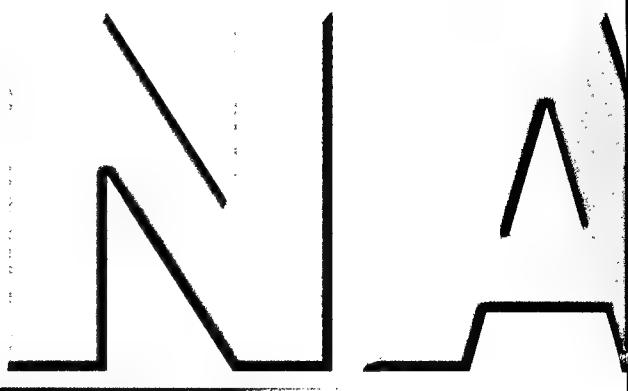
"We are at war for our community talent and are serious about this. We need to take back our JO's (junior officers) one officer at a time," said RADM Mike Mullen, Director, Surface Warfare." From IDTC (interdeployment training cycle) reductions to SWOCP and increased emphasis on mentoring, getting enough surface warfare officer accessions is vital to the long-term health of the community."

For the students at SWOS, the future is looking bright.

"I am very excited, ecstatic and happy to be here. It is a whole different world from what I had been doing as a civilian," said LCDR Hess.

For many of them returning to Newport for Surface Warfare School is *déjà vu* and a return to what they missed and loved doing. All are looking forward with great anticipation to reporting to their ships and starting their careers as department heads. ■

Course at Forefront of



By ICC (SW) Michael R. Calvillo

Amidst the historic brick buildings and displays of Naval Training Center Great Lakes, the Navy is heading into the 21st century.

With its state-of-the-art ship control systems and new ground breaking instructional techniques and applications, Service School Command's electricians mate and interior communications electrician (EM/IC) division is at the forefront of Naval technology and training.

Earmarked for *Arleigh Burke* class destroyers, DDG 79 and above, the fiber optic data multiplex system (FODMS) course is taught to IC's eligible for advanced training.

FODMS is a critical ship command and control system. The information transfer process of the FODMS is accomplished utilizing digital and optical data transfer protocols. Because of the design features in the system, information transfer is nearly instantaneous. In addition, the system is capable of handling a significant increase in

the amount of data as compared to its predecessors. It also has redundancy features to prevent a complete system failure. Remarkably, 75 percent of the system can sustain damage without any degradation in system operation.

As all Sailors are aware, space is a high priority aboard ship. This new technology has reduced the amount of equipment used to digitize and optically transfer information by 75 percent over present systems.

Efficiency has also been optimized. The system's fiber optic cable is 80 percent lighter than the traditional copper wire cable and can handle 10,000 times more information.

Introduction to fiber optic technology, data transfer theory and computer programming is at the center of the course, while knowledge in interfacing the new system to existing equipment aboard ships for troubleshooting is essential to the student's success.

The eight-week course at Service School Command Great

Lakes teaches the Sailors how to repair and troubleshoot fiber optic systems and connectors by giving them hands-on use of specialized troubleshooting equipment such as, optical time domain reflectometers and optical decibel measuring devices.

Accomplishing this type of instruction required significant changes in the teaching methods for the course and required the use of enhanced, more cost-effective support material for students. Computer based training (CBT) in automated electronic classrooms (AEC) has replaced the instructional methods of old. Computers are at every student's desk and much of the curriculum is on disk. Class transparencies placed on overhead projectors are a relic of the past, replaced by computerized slide show presentations complete with animation and sound.

With a nearly paperless course, students personalize their individual course manual with their own notes and transfer those notes to disk to take to their ship. Skills in navigating tech manual software are also included in the instruction.

Training and Technology

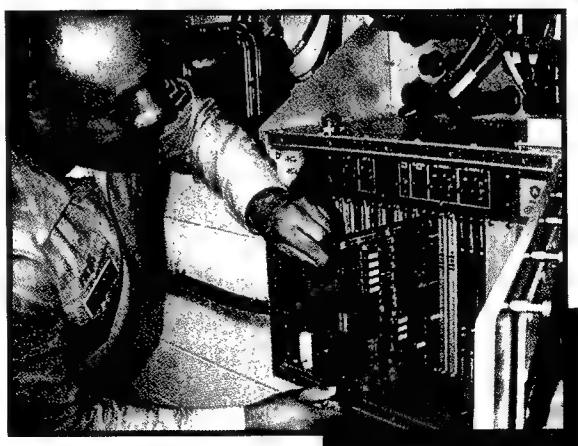
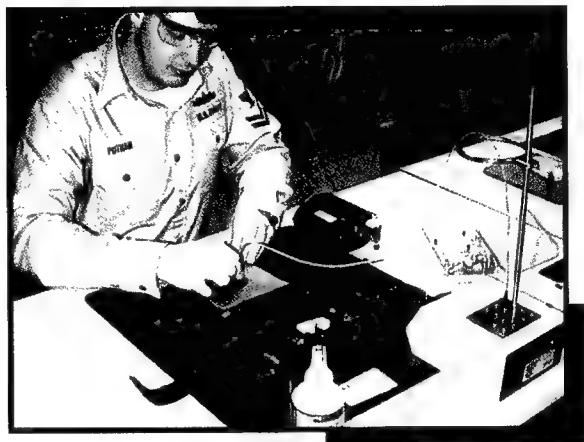
Every attempt to mirror their actual ship's system has been made and no paper manuals are aboard ship for this system. The software that students use in the class is the system manual.

Instructors selected to teach this highly specialized training must possess a diverse IC background, be versatile and have the capacity to learn to utilize new technology and instructional techniques.

Because of the speed of changes in this evolving world of technology, instructors must constantly remain abreast of changes that occur throughout the system.

Advances in technology are changing the type of Sailor who is required in the Fleet. Specialized systems like the FODMS require specialized training. Individuals who successfully meet these new demands and challenges place themselves at the forefront of the Navy of tomorrow. ■

Mike Molina, SSC Public Affairs contributed to this article.

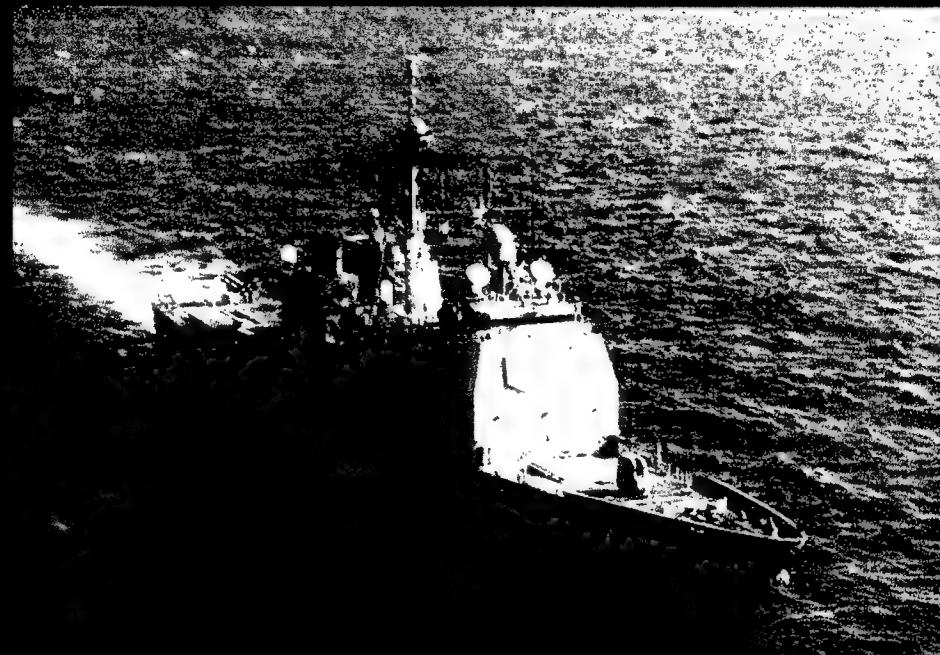


► Students get important hands-on training on all of the components of the fiber optic data multiplex system (FODMS) at Naval Training Center Great Lakes. (USN)

Rapid Prototyping in Surface USW Systems

By Kyrill Korolenko
and Rick Reichenberger

Naval Undersea Warfare Center Newport Division
Newport, R.I.



◀ The guided missile cruiser *USS Philippine Sea* underway as part of Cruiser Destroyer Group 12 (CRUDESGRU 12). (USN)

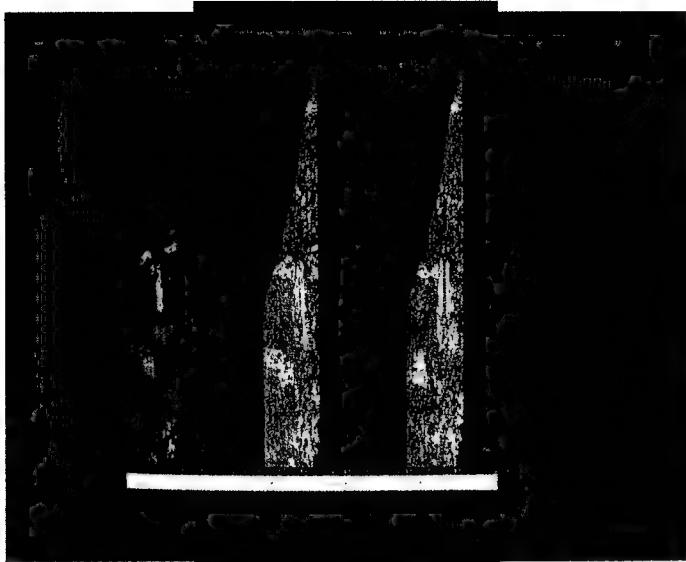
Background

The current publicity for commercial-off-the-shelf (COTS) systems being integrated into the U.S. Navy's submarine force ignores COTS products integrated into the U.S. Navy's surface ships undersea warfare (USW) systems. The submarine force has a formal process of inserting new technology into the Fleet, while the surface force is still struggling to develop a formal transition process. Here are a few examples of the U.S. Navy's surface ship rapid prototyping initiatives that have been successfully integrated into the fleet USW systems.

One of the objectives of the Naval Undersea Warfare Center (NUWC), Newport Division, is to expeditiously provide cost-effective, state-of-the-art solutions to surface fleet USW problems. With this objective in mind, the tactical and fleet support systems division, using COTS hardware including desktop computers and open architecture methodology, has undertaken many tasks that were intended to alleviate critical or crisis situations, resolve training problems, or increase the reliability and capability of ASW sonar systems. Each task undertaken has been developed while working with the end user (Fleet personnel), successfully tested and informally integrated

into surface ship USW systems. The success of these programs has been well documented through the publication of numerous technical memoranda and documents, various demonstrations and briefings, and through their incorporation into future systems.

The successful accomplishment of these tasks is directly attributable to the NUWC engineering and technical staff keeping abreast of the latest technologies and remaining on the cutting edge of engineering and computer technologies. Having access to state-of-the-art computer and acoustic analysis laboratory facilities and can drawing on other engineering resources at



▲ A screen shot of the KINGFISHER display. (USN)

NUWC has also been of critical importance.

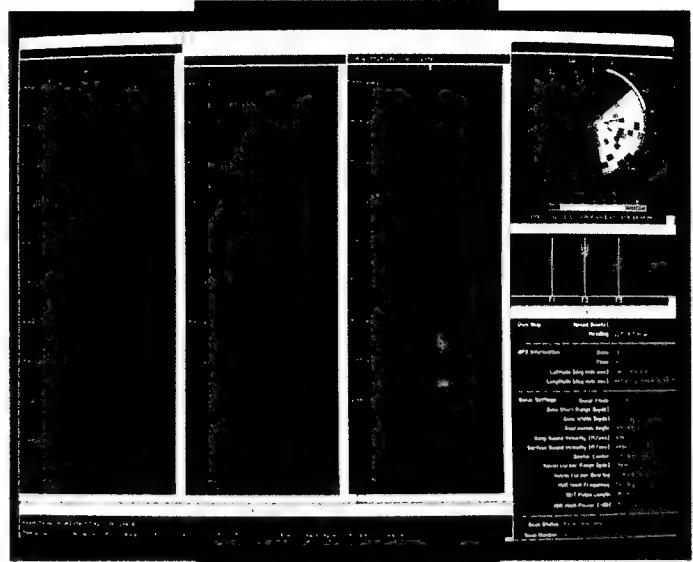
Management constantly provides the flexibility required by this engineering and technical staff to meet project and task goals free from systematic encumbrances. NUWC continues to accept all challenges to the norm, and rapidly prototype equipment and systems that alleviate crisis situations, and serve as the nucleus for further research and development for long term tactical gain. Some of the COTS/rapid prototype systems developed by NUWC are described in the following paragraphs.

TOPPS - In 1982, a desktop computer-based tactical operator's performance prediction system (TOPPS) was developed and implemented to provide performance predictions for the AN/SQR-18/18A towed sonar array. This system is composed of a COTS desktop computer (Hewlett Packard 9020) and provides a real-time assessment of the ship's capability against the submarine threat. Two years later, sea tests were made of a tactical information command and control system. The purpose of the computer

application was to more easily perform the target motion analysis for all threat contacts.

FFISTS - The *Knox* (FF 1052) class ships were built without any kind of automated tactical systems, which made these ships effectively obsolete. Without a computer, their ASW systems could not effectively track multiple targets. The Fast Frigate Integrated Shipboard Tactical System (FFISTS), developed in the mid-1980s, consists of four desktop computers plus a special interface to the ship's sonar. There is no direct connection to the ship's radar, but changes to the radar consoles incorporated radar target detectors that could feed synthetic video into FFISTS. Because FFISTS was not wired directly to the ship's weapons, it was relatively easy to install. Because it was a decision aid rather than a combat direction system it was not required to meet more stringent military specifications.

This system was the difference between effectiveness and obsolescence for this class of ships, and it was obvious that it would be easy to extend a system like FFISTS to full combat direction status. The



▲ A screen shot of the Active Playback System. (USN)

computers themselves were so powerful that programming didn't have to be as efficient in other comparable systems of the time. Through the use of computer driven displays and graphical presentations to enhance ASW tactics and planning, FFISTS offers real time capability trade-offs, and command level overviews.

For example, the FFISTS tells a user how his ship's sonar detection performance varies with towed array depth and anticipated threats in a variety of acoustic environments. It quickly displays, for the commanding officer's tactical understanding, the impact upon search effectiveness as his ship increases speed. It shows how coverage is degraded on particular bearings where interfering noise sources exert their own negative influences on the detection process.

From inception of the idea to realization in a Fleet unit, took only 18 months. Six months of that time was spent fixing bugs. Installation was accomplished in one week. FFISTS was first tested on board the USS *Harold E. Holt* (FF 1074) and later installed on 11 ships. The ease and speed with

which FFISTS entered service proves that commercial software nearly suffices for vital naval tactical roles.

SSAAC - Acoustic analysis is an exceptionally complex task. As more advanced tactical systems are installed in the Fleet, the U. S. Navy realized it had to change the way it trains sonar operators, mans the shipboard ASW billets and maintains acoustic analysis proficiency.

The surface ship ASW analysis center (SSAAC) program was established in July 1985 in response to an urgent Fleet need regarding these three concerns, and is a wholly in-house NUWC development effort.

The goal of the SSAAC program was to develop and install systems that allowed the Fleet to obtain target and contact information from tapes recorded by various sonar systems installed on operational units in a rapid manner. Specifically, this effort includes pre-mission support, post-mission analysis, rapid feedback to surface ship ASW teams and operators, and feedback to training, research and development and intelligence communities on significant trends or deficiencies. An added task was the development and administration of the surface ship acoustic analysis proficiency program (SSAAC).

The SSAAC program, whose facilities are equipped with commercial computers, tape recorders, and signal analyzers, continues to provide support to fleet ASW readiness.

Originally, SSAAC centers were located in Norfolk, San Diego, Mayport, Fla., and Yokosuka, Japan.

An active sonar record and playback (ASP) capability, consisting of a commercial desktop computer and software developed in the

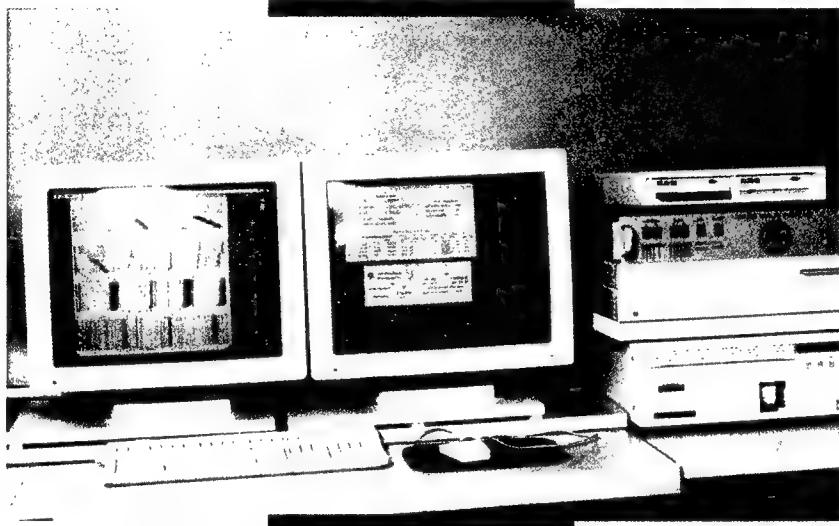
the Fleet ASW training center, Norfolk. VADM J. Metcalf who formally tasked NUWC to develop the system cut the ribbon.

TASWIT - The Tactical Advanced Simulated Warfare Integrated Trainer/S14A13 (TASWIT) was started in 1987 as a response to a letter from CNO to NAVSEA that requested the Naval Underwater System Center, New London (now NUWC DIVNPT) be technical design agent (TDA) for the project. This letter identified an urgent requirement to upgrade the Navy's only large, tactical, multi-warfare team trainer.

The original request was to build a COTS-based system to include software simulations of NTDS, SLQ-32, SQR-18A/19, and SQR-17A/28.

The TASWIT system was developed in one year using Zenith 248 personal computers networked to a Hewlett Packard 825 RISC instructor console. This was the first use of a COTS networked computer system for training. TASWIT was certified ready-for-training in February 1989 at Fleet ASW Training Center Atlantic less than two years after conception.

A Fleet ASW Training Center Atlantic (FLEASWTRACEN-LANT) message to NUWC on February 15, 1989, said that use of the TASWIT "was a resounding success" and that highly successful training was achieved. The TASWIT system was so well

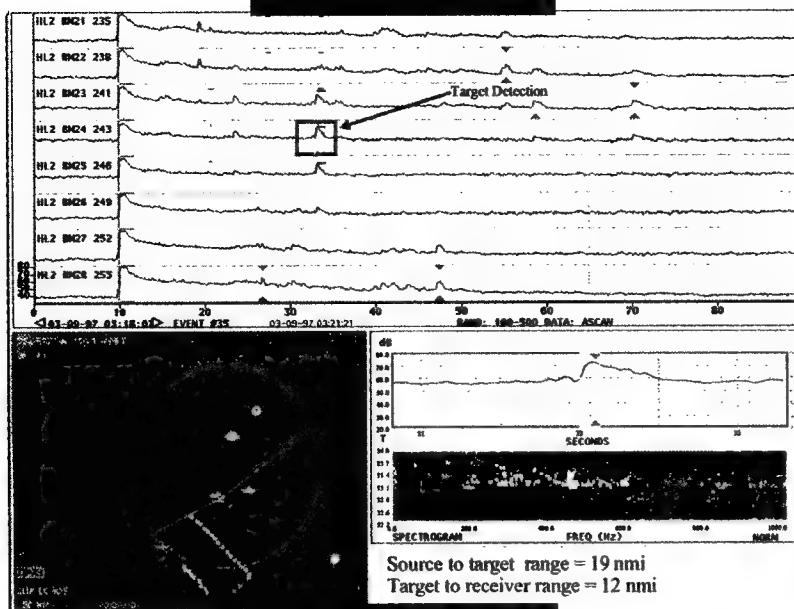


▲ The Mac Acoustic Signal Processor. (USN)

"C" language, has been incorporated, and the Mac DSP system has been installed as an adjunct processor.

A foreign military sales case was initiated by the Japanese government to install a SSAAC site for the Japanese Navy. One site has been constructed in Yokosuka, Japan, and the Japanese have requested that a second, but smaller, site be installed at their naval base in Sasebo.

The first SSAAC installation, which was in Norfolk, was formally accepted by CAPT. V. Clark (now our CNO), commanding officer of



◀ Distant Thunder display. (USN)

received, the first installation has more than doubled in size. TASWIT was installed at the U. S. Naval Academy, Surface Warfare Officer's School, 12 Naval Surface Reserve sites, and four ONR research sites, Fleet ASW Training Center Pacific (FLEASWTRACENPAC) and the Naval Post Graduate School.

ASPR - The Active Sonar Performance Realization (ASPR) program was initiated in April 1988 to correct known deficiencies affecting active sonar system performance. At the time, the analog AN/SQS-26CX,53A/B systems were the principal active sonar available to the Fleet, but the performance of these analog systems required frequent adjustments to maintain their design capability (to correct insidious system degradation).

The need to develop affordable, interim solutions using existing systems has become paramount. ASPR was an intensely aggressive program that pooled talent from various resources within NUWC and support contractors to answer this need. In May 1989, the ASPR program became a two-year

demonstration project with specified goals and "ground rules." Throughout the demonstration period, an advisory board comprised of active sonar system and analysis experts from government, industry, and the Fleet, was utilized to assist in ensuring that the ASPR Program met its intended goals.

The ASPR program consisted of seven COTS sub systems: performance assessment system (PAS); expert maintenance system (EMS); search planning and assessment module (SPAM); acoustic interference and monitoring system (AIMS); KINGFISHER; contact management system (CMS); and the data acquisition system (DAS).

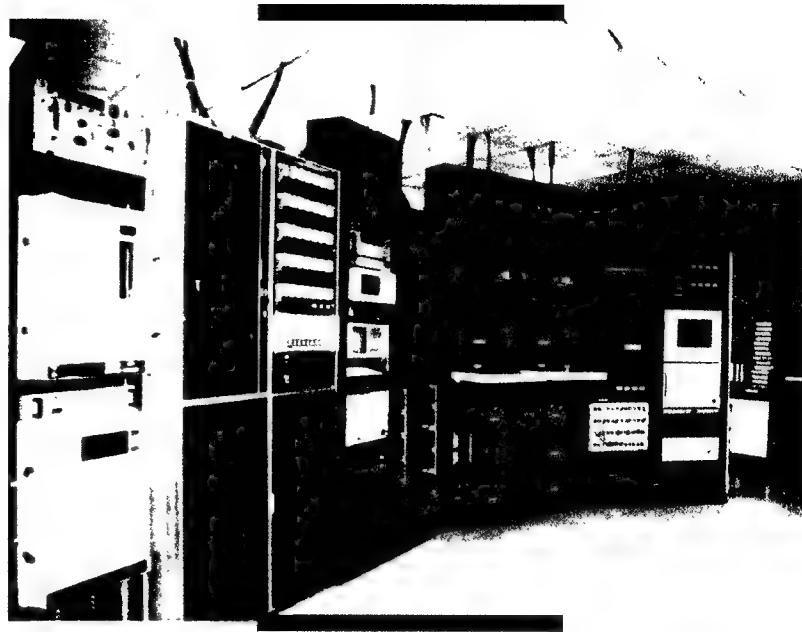
The ASPR system was installed and successfully tested and demonstrated on the USS *Ainsworth* (FF 1090). The Advisory Board was briefed during the system demonstration and provided comments relative to system utility. The ASPR program, operating under the specified ground rules, met or exceeded its planned goals. ASPR was transitioned to a formal mod kit (EC-16 to AN/SQS-53) that was later transitioned to the

AN/SQS-53D. This resulted in a fully COTS dry end for the AN/SQS-26 and AN/SQS-53A/B systems.

KINGFISHER - Project KINGFISHER was initiated in 1988 as a result of the USS *Samuel B. Roberts* (FFG 58) striking a mine while on routine patrol in the Persian Gulf. CNO assigned NUWC, Code 313 as the technical agent to identify candidate ASW sonar systems that might be modified to provide a small object avoidance capability.

The KINGFISHER design uses the existing hull mounted AN/SQS-56, 26, and 53 series sonar, incorporates minor hardware and software modifications to adapt to COTS equipment, an HP 9000, Model 360 computer, and modifies certain parameters to provide these systems with a mine-like object detection capability. A prototype was successfully tested in the Persian Gulf four months after the USS *Samuel B. Roberts* (FFG 58) incident. Following the success of the prototype, a second-generation prototype was developed, successfully tested, and deployed on FFGs

► The analysis room of the SSAAC Norfolk installation. (USN)



operating in the Persian Gulf. This system included an electronic charting system (ChartNav produced by LaserPlot Inc.) that is used as a tactical decision aid.

The capability of KINGFISHER was demonstrated to be extremely effective, and led to Secretary of the Navy H.L. Garrett III stating that "it directly affected U.S. policy in the Persian Gulf."

Presently, KINGFISHER is deployed on operating U. S. Navy ships and has transitioned to a mod kit for the AN/SQS-53C, has been incorporated into the AN/SQS-53D and remains an "informal" mod kit for the AN/SQS-56. An article that appeared in the May/June 1995 issue of *Surface Warfare*, "Mine Threat Maneuvering," describes the KINGFISHER project in more detail.

APS - A sonar operator's ability to detect, classify, and track active sonar contact display markings has always been a candidate for improvement. A study showed that the proficiencies exhibited by operators called upon to make detection's of target-like display

markings can vary by as much as 20dB. In 1989, an active sonar record/playback system was developed by NUWC to investigate this phenomenon.

The Active Playback System (APS) is a Macintosh based processor running software that has been developed to emulate the AN/SQS26CX and 53A signal processing and display functions. It allowed a land-based facility to reconstruct active sonar data that has been recorded with the ASPR recording system. The APS features open architecture that accepts commercially available NuBus based DSP cards. A flexible and portable design allows for various display and processing capabilities to be evaluated on land or at sea by sonar operators. The APS has also been used as an analysis tool to observe and record sonar data to disk at various stages of receive processing. The data stored on disk is then processed off-line.

The APS application and DSP coding is written in C language. This allows the signal and display processing code modules to quickly be modified to incorporate

changes, or expanded to provide additional features. Future expansion will incorporate PPI, DIMUS, and PEC processing. This system is used at SSAAC, Norfolk to play back data from SHAREM exercises.

Mac DSP - The Mac DSP Acoustic Signal Processor was designed and developed to provide a sonar signal processor that could be implemented on an inexpensive computer system operating in parallel with high performance digital signal processor chips. The combination of an AN/SQR-19 beam-former and the Macintosh-II FX personal computer-based signal processor and display, has provided a valuable, new capability to the surface antisubmarine warfare community. Two basic systems have been configured: a logarithmic system used as a shipboard passive sonar processor, and a linear system used as a high speed spectral analyzer onboard ship, at shore-based facilities, or training commands. Overall system flexibility allows the hardware to be used in multiple configurations and the software to be easily modified.

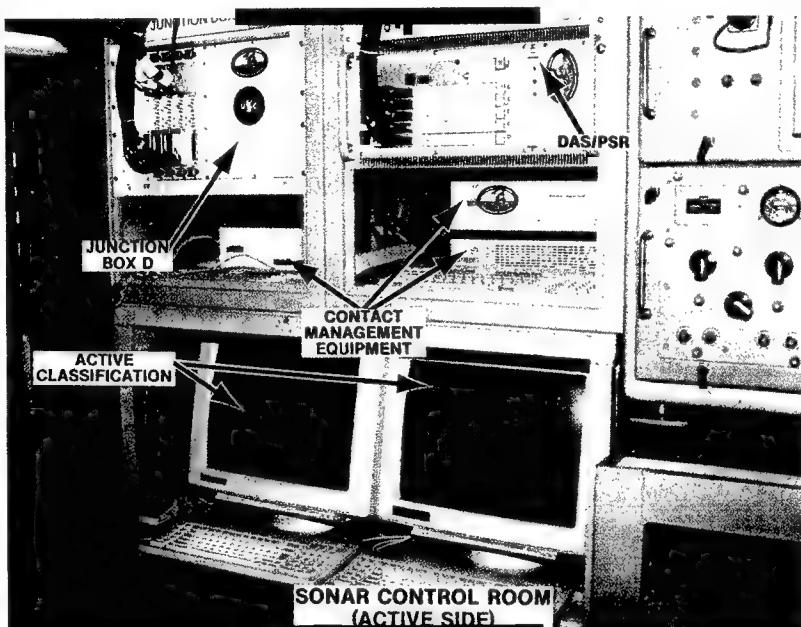
At-sea evaluation, both on U.S. surface ships and submarines, has demonstrated the Mac DSP's capability as a stand-alone system or as a valuable addition to the existing sonar suite. New systems are being built with the latest Mac processors to increase capabilities, and DIFAR processing has been incorporated into the most recent software versions. A prototype system has been developed that incorporates the Macintosh central processing unit (CPU) and the VME chassis into a rack-mountable, strengthened enclosure.

In addition to the Mac DSP's utility onboard U. S. surface ships and submarines, it has been incorporated as an adjunct processor on submarine sonars, included in the advanced processor builds (APB) in submarines, is currently utilized at fleet ASW training centers for acoustic analysis training, and has been sold by FMS Case, to the Japanese Naval Base, Yokosuka, Japan.

Distant Thunder - Existing sonar system sensors and tactics were developed for deep ocean undersea warfare. These systems provide limited performance in detecting a hostile diesel or mini-sub in littoral waters. In 1997, the U.S. Navy and private industry joined together to address this issue.

The Multi-Static Active Anti-Submarine Warfare Distant Thunder (MAASW DT) system is an advanced development, multi-static, low frequency, active

acoustic, anti-submarine warfare system. BBN Technologies, (a part of GTE), developed the signal processors and displays; NUWC provided the Mac DSP beam-former and ship system interfaces; and at-sea demonstration and testing were conducted in conjunction with the Surface Warfare Development Group (SWDG) SHAREM exercises in the Seventh Fleet area of responsibility.



▲ Shipboard installation of Active Sonar Performance Realization Program. (USN)

Temporary ship installation and testing has been performed by NUWC and temporary aircraft installation has been performed by the Naval Air Warfare Center.

This net-centric system, allowing real-time data fusion and operator interaction between MAASW equipped platforms, provides rapid detection, classification and localization capability to anti-submarine warfare ships and aircraft. Using the latest available COTS technology and off-board acoustic sources, MAASW DT has significantly outperformed current hull mounted systems, allowing for tactically useful detection ranges and classification against diesel submarines in all

currently exercised shallow water environments.

Transitioned from the Defense Advanced Research Projects Agency (DARPA), MAASW DT has been operated aboard five surface combatants as well as on P-3C and SH-60 aircraft in five separate SHAREM exercises.

In December 1999, the Seventh Fleet requested continued support of MAASW DT development, until the system is formally transitioned to the Fleet. Further development will include evaluation of alternate source technologies and processing techniques as they become available.

The MAASW DT system infrastructure continues to show exceptional promise in meeting operational Fleet anti-submarine warfare needs in littoral environments, and will be incorporated into the AN/SQQ-89 USW systems in the future.

In summary, the use of COTS hardware and rapid prototyping and open architecture methodologies in the development of these and future programs is a cost effective way to provide the Fleet with the tools it needs to perform its mission in an ever changing environment. The use of COTS hardware and rapid prototyping and open architecture methodologies will also provide the means to upgrade these tools in a timely manner to remain abreast of advancing technologies. ■

The SWOS After Next...

**By LT
John Callaway**

As part of our transformation strategy to the "Navy after next," we should review our basic surface warfare training. As crew size decreases and underway training becomes more focused, demands on surface warriors at sea will increase. The Surface Warfare Officer School (SWOS) can help by producing division officers ready to play a role upon arrival.

Pilots go to flight training and learn to fly. Sea-Air-Land (SEAL) Sailors go to Basic Underwater Demolition School (BUDS) and learn special warfare. Marines go to the basic school and learn basic infantry tactics. SWOS also provides a core competency for its students, but I believe we need to shift its focus from providing division officers trained in administration to providing junior warriors.

The "SWOS after next" should become a "field school," where ensigns are trained as ship-drivers and warfighters. It will have to start by changing the name from division officer course to basic surface warfighting, or words to that effect. If we can get our young officers out of the classroom and on to the water, away from PMS boards and into tactics, we will infuse a sense of mission and a feeling of competence that is currently missing in many of our officers reporting to the fleet.

Some surface warfare officers have suggested abolishing SWOS and sending junior officers straight to the Fleet.

By spending time at sea rather than in the classroom, junior SWOs would be focused on qualifying. I think this is the right idea, but the wrong environment. A period of development is needed where they can learn the basics without operational pressures and administrative distractions. This is crucial to building our core competency skills. It is also a time to plant the seeds of a surface warfare culture.

A mix of underway time and classroom time on the order of three days underway and two days in class per week would be enough. Getting underway at a gentlemanly hour and returning in time for dinner at home would keep morale and interest high.

Imagine a graduation exercise where newly qualified ensigns drive two squadrons of yard training craft (including the latest trimaran and surface effect ship designs), and maneuver against one another testing the latest in fast patrol boat (FPB) tactics (as directed by the department head course students!) while the Navy Warfare Development Center looks on, finally bringing their boats in for a solo landing at the pier.

To get to that point, the surface warriors-in-training would necessarily have to work on getting under way from the pier, formation steaming, small boat officer qualifications, basic damage control, basic life saving, basic boating safety and basic engineering to name but a few. Curriculum items could also include: FPB/Anti-FPB

tactics, craftmaster qualifications, amphibious boat group commander, small boat tactics and asymmetric warfare, electric distribution systems (electric drive), surface ship torpedo defense, visual piloting and navigation, pre-planned responses and special warfare tactics.

The "SWOS After Next" should become a "field school," where ensigns are trained as ship drivers and warfighters.

The net result may be that our new ensigns get to the fleet with less knowledge of administration. That may be a blessing in disguise as our surface warrior chief petty officers will step up to run the divisions while the ensigns concentrate on becoming better ship drivers and tacticians.

The "SWOS after next" may be a necessary step as minimally manned ships have less time to qualify junior officers.

The goal of the "SWOS after next" should be to provide the fleet with competent ship drivers and warfighters upon their arrival to a ship. Hands-on training at the "SWOS after next" will produce the surface warriors we need. ■

Changes of Command

SURFLANT

COMCRON THREE

CAPT Gregory Cornish relieved
CAPT Gary Belcher

COMDESRON TWO SIX

CAPT Scott L. Jones relieved
CAPT Robert J. Cox

COMPHIBRON FOUR

CAPT Ronald L. Chapman relieved
CAPT Ros Poplar III

USS Wasp (LHD 1)

CAPT Robert L. Jackson relieved
CAPT H.G. Story

USS Cole (DDG 67)

CDR Richard J. Abresch relieved
CDR Kirk Lippold

USS Boone (FFG 49)

CDR Jefferey L. Morman relieved
CDR David W. Costa

USS Tortuga (LSD 46)

CDR James P. Driscoll relieved
CDR John M. Burdon

USS Mahan (DDG 72)

CDR David C. Robertson, Jr. relieved
CDR James R. Yohe

USS Stout (DDG 55)

CDR Clifford S. Sharpe relieved
CDR J.A. Horn, Jr.

USS La Moure County (LST 1194)

CAPT M. M. Moore relieved
CDR R. L. Johnson

USS Shrike (MHC 13)

LCDR Rhinda K. Ranch relieved
CDR Dan Derbes

USS Dextrous (MCM 13)

LCDR Mikchael Hegarty relieved
CDR Gary Parriott

USS Robin (MHC 54)

LCDR Mark R. Laxen relieved
CDR Matthew S. Beaver

USNS Big Horn (TAO 198)

CAPT Stephen W. Ferguson relieved
CDR Jon Mellow

USNS Sirius (TAFS 8)

CAPT Bill Thomas relieved
CDR Robert J. Russell

SURFPAC

USS Anchorage (LSD 36)

CDR Kent V. Flowers relieved
CDR David S. Angood

USS McClusky (FFG 41)

CDR William B. Haflich relieved
CDR John M. Christenson

USS Fletcher (DD 992)

CDR Dell W. Epperson relieved
CDR Christopher D. Noble

USS Gary (FFG 51)

CDR Michael R. Olmstead relieved
CDR Steven J. Camacho

USS Rushmore (LSD 47)

CDR Peter J. Fanta relieved
CDR Michelle J. Howard

USS Lake Erie (CG 70)

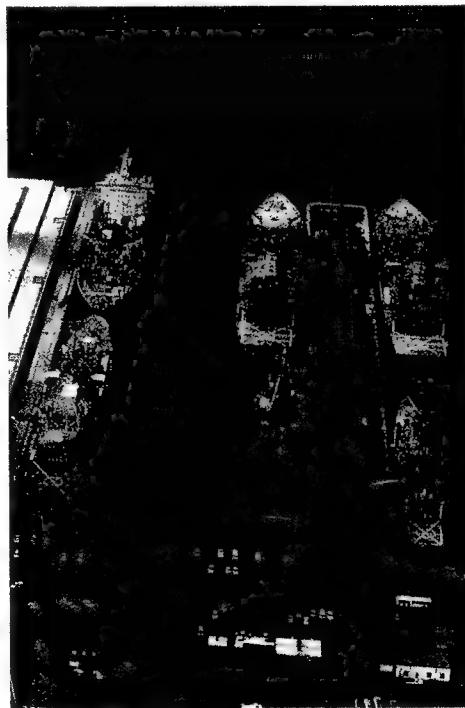
CAPT John J. Hammerer relieved
CDR Leonard Capello

USS Curts (FFG 38)

CDR Lewis C. Nygard relieved
CDR John W. Riley III

USS O'Kane (DDG 77)

CDR Taylor W. Skardon relieved
CDR David C. Hulse



▲ A sampling of the ships tied up at Piers 4 and 5 of Norfolk Naval Base. (USN)

SITREP

Navy Announces New Education Partnerships

The Navy College Program (NCP) has developed new partnerships with 16 colleges and universities to offer rating-related degrees via distance learning to Sailors everywhere.

These new education partnerships provide associate and bachelors degree programs related to each rating, and make maximum use of military professional training and experience to fulfill degree requirements. The program also provides opportunities to take courses through distance learning so that Sailors anywhere will be able to pursue a degree. Beginning in January 2001, the college partners can be reached by hotlinks from the Navy College Center (NCC). Although all Navy ratings are paired with at least one degree choice, some ratings need additional options. NCP will seek additional education partnerships in the Spring of 2001.

Partner colleges will offer courses in a variety of formats, such as CD-ROM, videotape, paper or over the Internet. The new partnerships build on the existing servicemembers opportunity colleges-Navy (SOCNAV) foundation, which supports both the Sailor's mobile lifestyle and educational goals. With more than 80 SOCNAV member schools, Sailors will have the option to pursue the degree of their choice.

To find out about your education opportunities go to your Navy College Office, visit the NCC web site at www.navycollege.navy.mil, e-mail the NCC at ncc@cnet.navy.mil, or call the toll free number 1-877-253-7122, (DSN) 922-1828.

—CNET Public Affairs Office,
Pensacola, Fla.

Groundbreaking held for World War II Memorial

WASHINGTON (NWS) — World War II veterans, many in wheelchairs or with walkers, were out in force Nov. 11 to participate in groundbreaking ceremonies for the National World War II Memorial on the National Mall here.

"We're a lot like the season," said Andy Glover, a vet from Harrisburg, Pa., as he watched the gusting wind knock more leaves out of the trees near the site. "We're like the leaves in that there's more of us falling each day. I'm glad I'm here to see this."

President Clinton, former Sen. Bob Dole and Defense Secretary William S. Cohen joined with World War II veterans to begin the process of building the \$140 million structure.

Speakers and veterans stressed that the memorial will honor more than 400,000 Americans who died in the war. It will also pay tribute to the generation that fought the war. Another purpose is to school future generations about the sacrifices Americans have made for freedom. Plans call for dedication of the completed structure on Memorial Day 2003.

Dole, who served as chairman for the memorial, touched on why a World War II memorial is being built now, 55 years after the Japanese surrender aboard the USS *Missouri* (BB 63) in Tokyo Bay ended the war.

"There is a simple answer: because in another 55 years there won't be anyone around to bear witness to our part in history's greatest conflict," Dole said.

"For some, inevitably, this memorial will be a place to mourn," Dole said. "For millions of others, it will be a place to learn, to reflect and to draw inspiration for whatever tests confront generations yet unborn."

President Clinton, in his address to the veterans, said the memorial will act as a challenge to generations.

"This memorial is built not only for the children whose grandparents served in the war, but for the children who will visit this place a century from now, asking questions about America's great victory for freedom," Clinton said. "With this memorial, we secure the memory of 16 million Americans, men and women who took up arms in the greatest struggle humanity has ever known."

World War II was the central aspect of life during the 20th century and all Americans drew together as one to win the conflict. Clinton said the memorial will remember those who fought and died overseas and those who helped win the war on the home front.

Clinton said the memorial will allow Americans to "remember those who fought faithfully and bravely for freedom, even as their own full humanity was under assault: African Americans who had to fight for the right to fight for our country, Japanese Americans who served bravely under a cloud of unjust suspicion, Native American codetalkers who helped to win the war in the Pacific and women who took on new roles in the military and at home."

Cohen praised the veterans in the audience. "We, the heirs of your sacrifice, are citizens of the world you made and the nation you saved," he said. "We can only stand in awe at your silent courage, at your sense of duty and at the sacred gift that you have offered to all those who came after you. The honor of this day belongs to you."

Cohen continued, "The men and women of America's armed forces,

those who inherited your spirit, who defend the consecrated ground on which you fought, today carry on your noble work, preserving what you have created, defending the victory you achieved, honoring the great deeds and ideals for which you struggled and sacrificed. All of us, all of us, are truly and deeply in your debt forever."

The memorial will contain soil from all the overseas cemeteries where American dead from the war are buried.

"What makes this hallowed ground?" Dole asked. "Not the marble columns and bronze statues that frame the mall. No, what sanctifies this place is the blood of patriots across three centuries and our own uncompromising insistence that America honor her promises of individual opportunity and universal justice.

"This is the golden thread that runs throughout the tapestry of our nationhood — the dignity of every life, the possibility of every mind, the divinity of every soul," Dole continued. "This is what my generation fought for on distant fields of battle, in the air above and on remote seas. This is the lesson we have to impart. This is the place to impart it."

—By Jim Garamone,
American Forces Press Service

**"We're like the leaves
in that there's more of
us falling each day. I'm
glad I'm here to see
this."**

Singapore Sailors Live Master Chief Brashear's Legacy

SINGAPORE (NWS) — Sailors in Singapore got a taste of Hollywood when the movie "Men of Honor" premiered here recently.

But instead of movie stars wearing glittering gowns, the crisp summer whites of Navy uniforms filled the theater. Navy personnel stationed in Singapore attended the screening along with members of the submarine USS *Cheyenne* (SSN 773) on a port visit.

"Men of Honor" is based on the life of Master Chief Carl Brashear. The retired boatswain mate overcame racial discrimination and a seventh-grade education to become the Navy's first African American master diver.

"I thought the movie was enlightening and encouraging. It was encouraging to me because it showed it doesn't matter what people say, any obstacle can be overcome," said DT2 Kelvin Alexander of Logistics Group, Western Pacific.

Brashear grew up in a sharecropper's family in Kentucky and enlisted in the Navy in 1948. After several years of duty as a steward and a boatswain mate, Brashear was accepted into the Navy dive school. There, he faced discrimination from both his shipmates and superiors. His sense of honor kept him going.

"Being able to serve 32 years in the United States Navy and displaying the expertise and knowledge to do my job successfully, and at the same time gaining the respect of both seniors and juniors, that's what honor means to me," said Brashear, who was in Singapore for the premiere.

Overcoming many seemingly insurmountable obstacles, Brashear has inspired many Sailors, past and present.

"He is an incredible person because of the fact that he did not give up, and he always achieved his goals," said L.C. Browning, the Navy Exchange manager in Singapore. Browning served with Brashear from 1968 to 1969 in Norfolk, Va.

"I think it had something to do with what his daddy instilled in him, he always achieved what he set out to do," said Browning.

After receiving a prosthetic leg following a shipboard accident, Brashear fought the prejudices of those who thought he should retire, and achieved his life-long dream of becoming a master diver.

"I don't see how anyone who has been through as much as he has can be so calm. You'd think he'd have a hard attitude, but he didn't. He was really down to earth and calm," said ET3 Phillip Parker, a USS *Cheyenne* Sailor. "He inspired me to be a diver, it looked like a big time challenge. It took dedication."

Brashear knows anyone can achieve their dream with the right plan.

"Love yourself, set your goals, and work toward those goals with all your might. And just like my father said, 'when the going gets hard, and it will, don't quit — and you will be successful,'" said Brashear.

The Singapore premiere of "Men of Honor" was the first showing overseas. The movie opened stateside Nov. 10.

—By JO2(SW) Daniel Butterfield,
Logistics Group,
Western Pacific public affairs

Detroit Lions Honor USS Cole Sailors

PONTIAC, Mich. (NWS) — Just a day after Veterans Day, four Michigan Sailors from the destroyer USS *Cole* (DDG 67) were treated like royalty by the Detroit Lions football team during the pre-game ceremony.

Attending the Lions-Atlanta Falcons game were Michigan residents FC3 Jason Mosher of Port Huron, EM2 Kristofer Dettloff of Troy, OS2 Paul Riddle of Beverly Hills and BMC Eric Kafka from Reed City.

As the crewmen came individually onto the field for the pre-game ceremony and were introduced by the Silverdome announcer, the full stadium roared its approval with each introduction.

And when the announcer asked for a commemorative moment of silence for the *Cole* casualties, the huge football stadium became as quiet as a chapel.

The Sailors joined an all-service color guard at attention. When a local singer began singing the National Anthem, Kafka called his detail to a smartly executed hand salute.

The conclusion of this inspirational event was pre-ordained. The crowd became louder and louder as the National Anthem wound down. When the ceremony was over and the Sailors marched from the field, 80,000 Lions football fans were, if for just a moment, the biggest Navy fans of all.

While the Sailors made an impact on the crowd, tellingly, it was the numerous individual shouts of approval, heart-felt hand shakes and backslaps along the packed corridors that had the greatest impact on the *Cole* Sailors.

The crewmen, their family and friends stayed as the guests of the Lions for the game, which Detroit won 13-10.

—By JOC Daniel C. Ross, NR
Navy Information Bureau Det 813

Surface Warfare and the Future of Graduate Education

The Naval Education Coordination Council held in July at the Naval Postgraduate School, Monterey presented the surface warfare position on the future of graduate education. The conference's objective was to lay the foundation for the future of graduate education for the unrestricted line. All the warfare sponsors were represented at this flag-level conference. The message delivered was that surface warfare is committed to graduate education and will continue to lead the Navy in graduate-level opportunity.

The surface warfare community's sponsorship of the newly established systems engineering integration (SEI) curriculum is an example of the community's commitment to investing in the growing netcentric/information warfare technologies of the future. Surface warfare leadership equates increased junior officer (JO) retention with increased graduate education opportunities, sending more officers to Naval Postgraduate School than any other community. Officers can combine full-time graduate education at Naval Postgraduate School with the Surface Warfare Officer Continuation Pay. (Obligated service is served concurrently). The following programs show that surface warfare JOs have more graduate education options than ever before:

- Graduate Education Voucher Program: this program provides up to \$40,000 for two years of off-duty graduate education for unrestricted line officers whose career paths provide limited

opportunity for full-time graduate education. Eligibility is open to 0-3 through 0-6 active-duty URL officers from the 1110, 1120, 1130, 1140 and 13X0 communities with demonstrated superior performance and upward career mobility. For further questions regarding GEV contact your detailer.

- Tuition Assistance (TASS) Program: this volunteer program

The surface warfare community's sponsorship of the newly established systems engineering integration (SEI) curriculum is an example of the community's commitment to investing in the growing netcentric/information warfare technologies of the future.

provides selected URL officers with up to two years of tuition (up to \$20,000 a year) to obtain a Navy-relevant master's degree while assigned to a shore duty billet.

- D.C. Intern Program: this program provides selected Navy officers the opportunity to pursue a master's degree while gaining valuable practical experience in Washington, D.C. The program will include a four-month, full-time education experience followed by part-time study (and completion of

an organizational management degree) while serving in intern positions with high-level Washington area staffs such as the joint chiefs of staff, the office of the secretary of defense, the secretary of the navy and the chief of naval operations. Additional information is available by contacting Naval Postgraduate School at (831) 656-1025, DSN 878-1025.

- Troy State MBA/Distance Learning Program
- UCSD MBA Program
- U.S. Naval Academy company officer program
- Joint military intelligence college (JMIC) masters program
- Education training management subspecialty (ETMS) program - ODU/USD/JAX/Memphis/George Mason

Additionally, starting in fiscal year 2001, approximately 30 academically qualified ensigns can go directly to Naval Postgraduate School to complete a masters degree program in one year. Lessons learned from the 1999 junior officer survey revealed that obtaining a graduate education is very important to the JOs. Surface warfare is committed to providing those opportunities. For more information on graduate education or obtaining a quota at Naval Postgraduate School, contact your detailer.



On Station

USLANTCOM/2nd Fleet

USS *Apache* (TATF 172)
USS *Gonzalez* (DDG 66)
USS *Grasp* (ARS 51)
USS *Moosebrugger* (DD 980)
USS *Patuxent* (TAO 201)
USS *Nicholas* (FFG 47)
USS *Stout* (DDG 55)
USS *Taylor* (FFG 50)
USS *The Sullivans* (DDG 68)
USS *Thorn* (DD 988)

USCENTCOM/5th Fleet

USS *Ardent* (MCM 12)
USS *Bon Homme Richard* (LHD 6)
USS *Bridge* (AOE 10)
USNS *Catawba* (TATF 168)
USS *Denver* (LPD 9)
USS *Dextrous* (MCM 13)
USS *Elliot* (DD 967)
USS *John C. Stennis* (CVN 74)
USS *Laboon* (DDG 58)
USS *Lake Champlain* (CG 57)
USNS *Niagra Falls* (TAFS 5)
USS *Pearl Harbor* (LSD 52)
USS *Port Royal* (CG 73)

USS *Rentz* (FFG 46)

USS *Samuel B. Roberts* (FFG 58)
USNS *Tippecanoe* (TAO 199)

USEUCOM/6th Fleet

USS *Anzio* (CG 68)
USS *Arthur W. Radford* (DD 968)
USS *Barry* (DDG 52)
USNS *Big Horn* (TAO 198)
USS *Cape St. George* (CG 71)
USS *Dwight D. Eisenhower* (CVN 69)
USS *Emory S. Land* (AS 39)
USNS *Kanawha* (TAO 196)
USS *Kaufman* (FFG 59)
USNS *Laramie* (TAO 203)
USS *La Salle* (AGF 3)
USS *Mahan* (DDG 72)
USNS *Mount Baker* (TAE 34)
USS *Oak Hill* (LSD 51)
USNS *Sirius* (TAFS 8)
USS *Thunderbolt* (PC 12)
USS *Trenton* (LPD 14)
USS *Wasp* (LHD 1)
USS *Whirlwind* (PC 11)

USPACOM/7th Fleet

USS *Belleau Wood* (LHA 3)
USS *Blue Ridge* (LCC 19)
USS *Chancellorsville* (CG 62)
USS *Curtis Wilbur* (DDG 54)
USS *Cushing* (DD 985)
USS *Decatur* (DDG 73)
USS *Fife* (DD 991)
USNS *Flint* (TAE 32)
USS *Fort McHenry* (LSD 43)
USS *Frank Cable* (AS 40)
USS *Gary* (FFG 51)
USS *Germantown* (LSD 42)
USS *Guardian* (MCM 5)
USS *Hopper* (DDG 70)
USS *Jarrett* (FFG 33)
USS *John S. McCain* (DDG 56)
USS *Juneau* (LPD 10)
USS *Kitty Hawk* (CVN 63)
USS *Mobile Bay* (CG 53)
USS *O'Brien* (DD 975)
USS *Patriot* (MCM 7)
USNS *Rappahannock* (TAO 204)
USS *Safeguard* (ARS 50)
USS *Salt Lake City* (SSN 716)
USS *San Jose* (TAFS 7)
USS *Spica* (TAFS 9)
USS *Topeka* (SSN 754)
USS *Vandegrift* (FFG 48)
USS *Vincennes* (CG 49)
USNS *Walter S. Diehl* (TAO 193)
USNS *Yukon* (TAO 202)

SOUTHCOM

USS *Doyle* (FFG 39)
USS *Estocin* (FFG 15)
USS *John A. Moore* (FFG 19)
USS *Samuel Elliot Morison* (FFG 13)
USS *Valley Forge* (CG 50)

USS Cole (DDG 67)

— In Memoriam

Hull Maintenance Technician Second Class Kenneth Eugene Clodfelter, 21, of Mechanicsville, Va.

Electronics Technician Chief Petty Officer Richard Costelow, 35, of Morrisville, Pa.

Mess Management Specialist Seaman Lakeina Monique Francis, 19, of Woodleaf, N.C.

Information Systems Technician Seaman Timothy Lee Gauna, 21, of Rice, Texas.

Signalman Seaman Cherone Louis Gunn, 22, of Rex, Ga.

Seaman James Rodrick McDaniels, 19, of Norfolk, Va.

Engineman Second Class Marc Ian Nieto, 24, of Fond du Lac, Wis.

Electronics Warfare Technician Second Class Ronald Scott Owens, 24, of Vero Beach, Fla.

Seaman Lakiba Nicole Palmer, 22, of San Diego, Calif.

Engineman Fireman Joshua Langdon Parlett, 19, of Churchville, Md.

Fireman Patrick Howard Rog, 19, of Cornwall on Hudson, N.Y.

Electronics Warfare Technician First Class Kevin Shawn Ruck, 30, of Portland, N.D.

Mess Management Specialist Third Class Ronchester Manangan Sandiego, 22, Kingsville, Texas.

Operations Specialist Second Class Timothy Lamont Saunders, 32, of Ringgold, Va.

Fireman Gary Graham Swenchenko Jr., 26, Rockport, Texas.

Ensign Andrew Triplett, 31, of Macon, Miss.

Seaman Craig Bryan Wibberley, 19, of Williamsport, Md.

